CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

AND

A SUPPLEMENT OF BOTANICAL AND HORTICULTURAL INFORMATION;

BY

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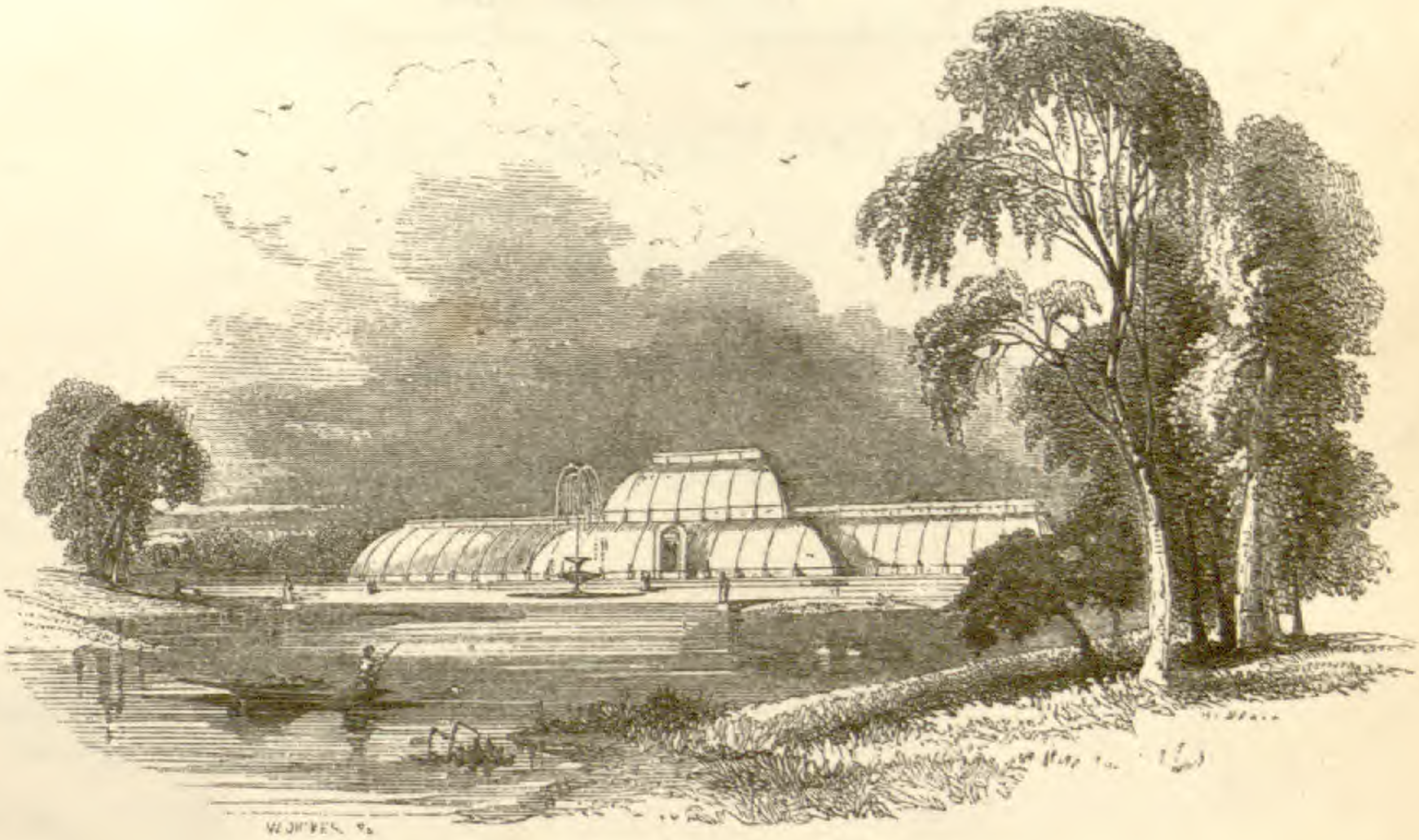
VOL. III.

OF THE THIRD SERIES;

(Or Vol. LXXIII. *of the Whole Work.)*



"No chilling cold deforms the beauteous year,
The springing flowers no coming winter fear."

LONDON:
REEVE, BENHAM & REEVE, KING WILLIAM STREET, STRAND.

1847.

SHOUT
SHARE
IT

REEVE, BENHAM & REEVE,
PRINTERS AND PUBLISHERS OF SCIENTIFIC WORKS,
KING WILLIAM STREET, STRAND.

TO

CAPTAIN SIR EVERARD HOME, BART., R.N.

WHO HAS LARGELY CONTRIBUTED,

BOTH

TO THE LIVING COLLECTION AND TO THE MUSEUM

OF THE

Royal Gardens,

THE BOTANICAL RESULTS

OF HIS LONG AND DISTANT VOYAGES,

THE PRESENT VOLUME

IS DEDICATED,

WITH SENTIMENTS OF REGARD AND ESTEEM

BY HIS FAITHFUL FRIEND AND SERVANT,

THE AUTHOR.

Royal Gardens, Kew.
Dec. 1st, 1847.

Fitch, del et lith.

Reeve imp.

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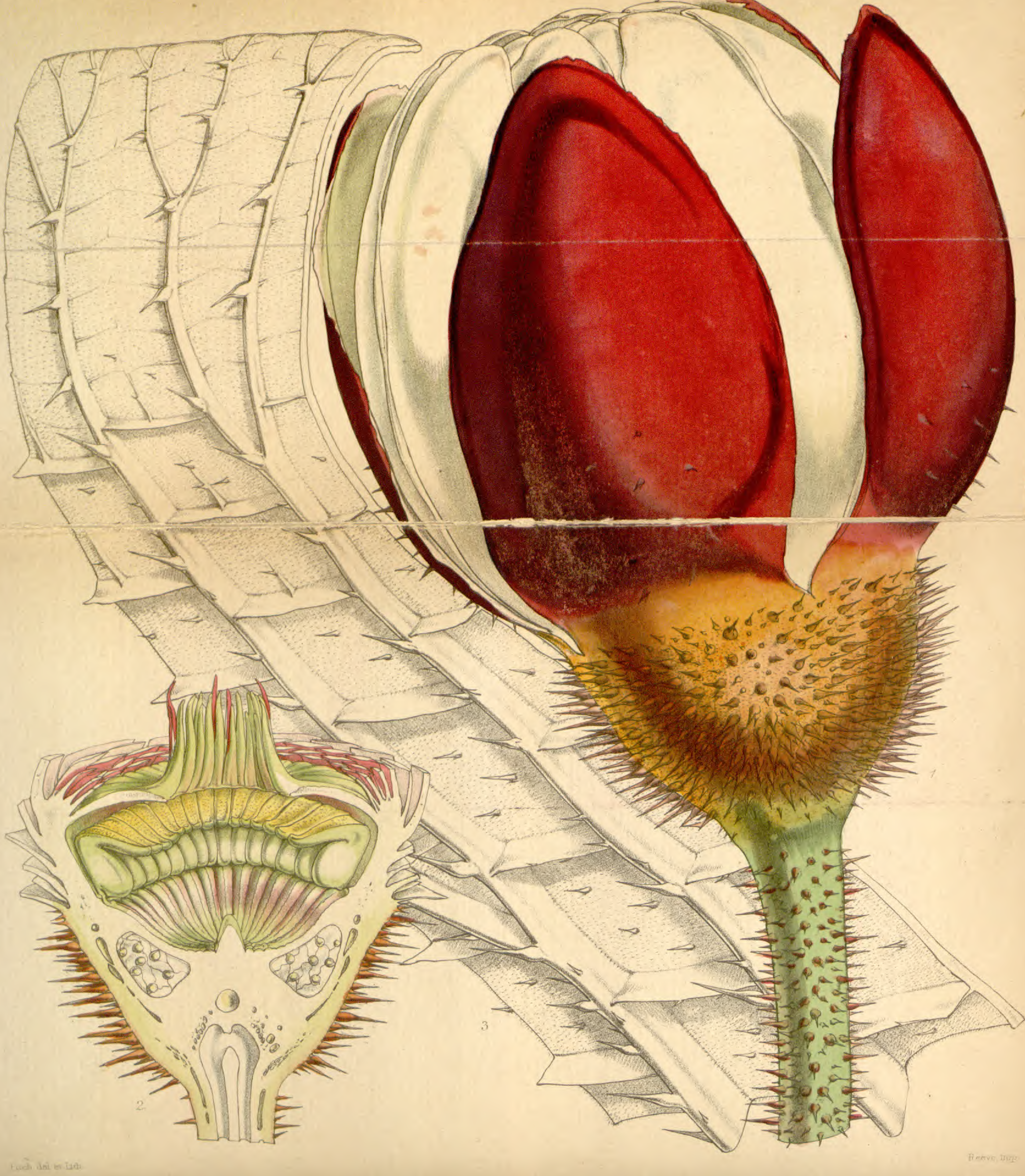
4277.



Fitch del et Lith.

Reeve imp.

Fitch del et lith

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TAB. 4275—4278.

VICTORIA REGIA.

Victoria Water-Lily.

Nat. Ord. NYMPHÆACEÆ. § EURYALEÆ.—POLYANDRIA POLYGYNIA.

Gen Char. VICTORIA, *Lindl. Calycis tubus* subglobosus, ovario adhærens, ad oram in torum expansus, limbo 4-partito deciduo colorato. *Petala* numerosa, fauci seu toro calycis inserta; exteriora patentissima, calycem superantia, interiora sensim angustiora acuminata rigida staminiformia; omnia basi in annulum v. torum connata. *Stamina* plurima, subduplici serie inserta, fertilia; *filamenta* subulata petaloidea, sed rigida firma basi monadelpha, demum erecta: *antheræ* introrsæ, infra apicem insertæ, lineari-elongatæ, adnatæ. *Filamenta* interiora subbiserialia sterilia, basi monadelpha. *Ovarium* inferum globosum, vertice concavo-campanulatum radiatum centro rostratum, multiloculare, loculis uniseriatim regulariter in circulum dispositis, pluriovulatis, *ovulis* parietalibus, funiculis reticulatis affixis: *stylis* nullis (in campanulam sulcatam tubum calycis vestientem connatis, *Lindl.*); *stigmatibus* maximis tot quot loculis, ad marginem verticis campanulati quasi articulatim insertis, lato-lanceolatis compressis carnosis erectis, medium versus ad angulum inflexis deciduis dorso stigmatosis. *Fructus* baccatus globoso-campanulatus v. cyathiformis, truncatus, supra campanulatus, intus rostratus, plurilocularis, loculis polyspermis. *Semina* ovali-globosa, nucamentacea.

Herba *ingens, aquatica, fluvios placidos Cisandinos Americæ australis habitans.* Radix *perennis*? foliis *giganteis, natantibus, orbiculatis, peltatis, planis, margine ubique elevatis, radiatim atque reticulatim nervosis, nervis subtus valde elevatis;* floribus *maximis speciosis albo-roseis, pedunculis longe extantibus;* petiolis, pedunculis, ovariis, nervisque *subtus insigniter aculeatis.*

VICTORIA *regia.* (TAB. NOSTR. 4275–4278.)

VICTORIA regia, *Lindl. Monogr. Vict.* 1837, *ined. cum ic. Bot. Reg. Misc.* 1838. *p.* 9. *D'Orbigny, in Ann. des Sc. Nat. v.* 13. *p.* 57. *Walp. Repert.* 1. *p.* 106. *Schomburgk, in Views in the interior of Guiana, p.* 2. *frontispiece.*

VICTORIA Regina, *Gray in Mag. of Zool. and Bot. v.* 2. 1838. *p.* 440.

NYMPHÆA Victoria, *Schomburgk in litt.*

EURYALE Amazonica, *Poepp. in Froriep, Notizen,* 35. *p.* 9. *Reise, v.* 2. *p.* 432.

VICTORIA Cruziana, *D'Orbigny, l. c. p.* 57 ("foliis utrinque concoloribus, petalis cunctis concoloribus roseis.")

It has always been our endeavour to commence a New Year in this Magazine with some eminently rare or beautiful plant; but never had we the good fortune on any occasion to devote a Number to a production of such pre-eminent beauty, rarity, and we may add celebrity, as that now presented to our Subscribers; worthy, as we have no doubt they will agree with us in thinking, to occupy the entire Number. Seldom has any plant excited such attention in the botanical world; the interest being specially enhanced by the name it is privileged to bear. If it could be said, in reference to the royal ancestor of Queen Victoria, the Consort of His Majesty, George III., that the *Strelitzia* was peculiarly appropriated to Her, because of the patronage which she gave to Botany, by improving and embellishing the Royal Gardens of Kew, much more does the name of VICTORIA claim to be handed down to posterity on similar grounds; seeing that Her present Majesty has been graciously pleased to make these Gardens available to the public enjoyment, and even to endow them with a liberal provision for that especial purpose.

It is true that the *Victoria* has not yet produced its blossoms in England; but we have growing plants in the Royal Gardens of Kew, which germinated from seeds brought from Bolivia by Mr. Bridges. These have hitherto made satisfactory progress; although we have our fears that the plant being possibly annual and the season late (December), they may not survive the winter; or, at any rate, may not produce perfect flowers. Many are the disappointments and delays of Science! It was not till after Tea had been used as a beverage for upwards of a century in England, that the shrub which produces it was brought alive to this country. More than one botanist had embarked for the voyage to China,—till lately a protracted and formidable undertaking,—mainly in the hope of introducing a growing Tea-tree to our Greenhouses. No passage across the Desert, no Waghorn-facilities, no steam-ship, assisted the traveller in those days. The distance to and from China, with the necessary time spent in that country, generally consumed nearly three years! Once had the Tea-tree been procured by Osbeck, a pupil of Linnæus, in spite of the jealous care with which the Chinese forbade its exportation; and, when near the coast of England, a storm ensued, which destroyed the precious shrubs. Then, the plan of obtaining berries was adopted, and frustrated by the heat of the tropics, which spoiled the oily seeds and prevented their germination. The Captain of a Swedish vessel hit upon a good scheme: having secured fresh berries, he sowed these on board ship, and often stinted himself of his daily allowance of water, for the sake of the young plants; but just as the ship entered the English Channel, an unlucky rat attacked his cherished charge and devoured them all! We have, however, no reason to despair of being able to raise the *Victoria regia* and of seeing it bloom in this country. The time is not long, since we first heard of this gorgeous Water-Lily; and the facilities of communicating with foreign countries are very different now from what they were in the days of Linnæus and of the first importation of the Tea-Shrub!

Of the *Victoria* we have the good fortune to possess flowering specimens, gathered by Sir Robert Schomburgk; and blossoms, both preserved in spirits and dried, collected by Mr. Bridges. These, with coloured drawings executed on the spot by Sir Robert, enable us to present, in the accompanying figures, all the more important analyses necessary to illustrate the genus and species of the plant.

Although to our own country belongs the honour of first fully detailing, in 1837, the particulars relative to this extraordinary Water-Lily, and clearly defining its generic distinctions, yet the earliest mention of it in print, so far as we can find, was in 1832,* in a work to which we have not at this moment access, 'Froriep's Notizen', vol. xxxv. p. 9. It is there described as a new species of *Euryale*, under the name of *E. Amazonica*; so called by Dr. Poeppig, from the circumstance of that distinguished botanist and traveller having found it in the Amazon River of South America. Afterwards (in 1836) he alludes to it, in the 2nd vol. of his 'Reise in Chile, Peru, &c.' p. 432; but only says, "In the Igaripés, which are branches of the Amazon River, bearing no peculiar appellation, yet worthy to rank, from their size, with rivers of the second magnitude in Europe, grow some aquatic plants, whose almost fabulous dimensions may vie with the celebrated *Rafflesia* of India; while they excel that wonderful production in beauty of inflorescence." Then, in a note, he specifies the *Euryale Amazonica*, as belonging to the family of *Nymphæaceæ*, "whose wonderfully large leaves are deeply channelled below and traversed with veins beset with prickles, their width equalling six feet, while the flower is lovely snow-white externally, and crimson within, and measures from ten to eleven English inches across." "This," he says, "is the most magnificent plant of its tribe, though far from common; I only saw it in one Igaripé, near the confluence of the Teffle river with the Amazons. The flowers appear in December and January. It is called Mururá."

Previously, however, to this period,† M. D'Orbigny, in 1828, sent specimens of this gigantic Water-Lily to the Museum of Natural History in Paris. He had gathered them in the Province of Corrientes, in a river tributary to the Rio de la Plata. The evident analogy between the foliage of this plant and that of *Euryale*, induced the French botanists also to rank it as a species of that genus. The dried flowers and fruit, which M. D'Orbigny had transmitted, were unfortunately neglected, and nothing remained of his specimens but a single leaf, of immense dimensions and somewhat injured, which had been folded for insertion in the Herbarium.

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* Guillemin, in 'Ann. des Sciences Naturelles,' v. xiii. p. 51.

† Guillemin, *l. c.*

In 1835, the following notice of what M. D'Orbigny is disposed to consider a species of the genus distinct from our plant, appeared in that author's 'Voyage dans l'Amérique Méridionale.' "I resumed my descent of the Paranà on the 3rd of March, and arriving at the junction of a small river called the San Josè, which spreads into a wide marsh before falling into the Paranà, I found one of the most beautiful flowers that America can produce. The plant seems to belong to the family *Nymphæaceæ*, and is certainly much allied to the *Nuphar*, but its dimensions are gigantic. The people of Guiana call it Irupé, deriving this name from the shape of its leaves, which resemble the broad dishes used in the country, or the lids of their large round baskets. A space, more than a mile broad and nearly a mile long, is covered with the large floating leaves, each of which has a raised edge two inches high. The foliage is smooth above and furrowed below with numberless regular compartments, formed by the projecting, thick, hollow nerves, the air in which keeps the leaf upon the surface of the water. Leaf-stalks, flower-stalks, and ribs of the leaves, are alike cellular and covered with long prickles. Amid this expanse of foliage rise the broad flowers, upwards of a foot across, and either white, pink, or purple; always double, and diffusing a delicious odour. The fruit, which succeeds these flowers, is spherical, and half the size, when ripe, of the human head, full of roundish farinaceous seeds, which give to the plant the name of Water-Maize (Maïs del Agua), for the Spaniards collect the seeds, roast and eat them. I was never weary of admiring this Colossus of the Vegetable Kingdom, and reluctantly pursued my way the same evening to Corrientes, after collecting specimens of the flowers, fruits, and seeds."

Thus much for the earlier discoverers and first notices of this magnificent aquatic: we shall have occasion to return to M. D'Orbigny; but in the meanwhile it is only justice to mention in this place, that Sir Robert Schomburgk detected the plant in British Guiana, when travelling on account of the Royal Geographical Society of London, aided by Her Majesty's Government; his object being to examine the natural productions of that portion of the British Dominions. The following account of this discovery was given in a letter addressed to the Geographical Society.*

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* Another, and similar but more brief, account, contained in a letter addressed

"It was on the 1st of January, 1837, while contending with the difficulties that nature interposed in different forms, to stem our progress up the River Berbice (lat. 4° 30′ N., long. 52° W.), that we arrived at a part where the river expanded and formed a currentless basin. Some object on the southern extremity of this basin attracted my attention, and I was unable to form an idea what it could be; but, animating the crew to increase the rate of their paddling, we soon came opposite the object which had raised my curiosity, and, behold, a vegetable wonder! All calamities were forgotten; I was a botanist, and felt myself rewarded! There were gigantic leaves, five to six feet across, flat, with a broad rim, lighter green above and vivid crimson below, floating upon the water; while, in character with the wonderful foliage, I saw luxuriant flowers, each consisting of numerous petals, passing, in alternate tints, from pure white to rose and pink. The smooth water was covered with the blossoms, and as I rowed from one to the other, I always found something new to admire. The flower-stalk is an inch thick near the calyx and studded with elastic prickles, about three quarters of an inch long. When expanded, the four-leaved calyx measures a foot in diameter, but is concealed by the expansion of the hundred-petaled corolla. This beautiful flower, when it first unfolds, is white with a pink centre; the colour spreads as the bloom increases in age; and, at a day old, the whole is rose-coloured. As if to add to the charm of this noble Water-Lily, it diffuses a sweet scent. As in the case of others in the same tribe, the petals and stamens pass gradually into each other, and many petaloid leaves may be observed bearing vestiges of an anther. The seeds are numerous and imbedded in a spongy substance.

"Ascending the river, we found this plant frequently, and the higher we advanced, the more gigantic did the specimens become; one leaf we measured was six feet five inches in diameter, the rim five inches and a half high, and the flowers a foot and a quarter across. A beetle (*Trichius* sp.?) infests the flowers to their great injury, often completely destroying the inner part of the disc; we counted sometimes from twenty to thirty of these insects in one flower."

This highly interesting Narrative was made the groundwork of a more full history of the plant, accompanied by a splendid figure, in a separate memoir of Atlas-folio size, by Dr. Lindley. Only twenty-five copies were printed for private distribution, in 1837,

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to us, was published, with further remarks, in the 'Annals of Natural History for 1838,' p. 65.

and shortly after, this gentleman published the same account, with important additions, in the Miscellaneous Notices of the 'Botanical Register', whence copious extracts appeared in numerous papers and journals. Nevertheless, that able botanist had to acknowledge, that the specimens in the possession of the Geographical Society, from which his generic and specific character (aided by Schomburgk's coloured drawings) had been drawn up, were in a very decayed condition, owing to the manner in which they had been packed. They were, however, he says, botanically examinable; and such he has proved them to be by the accuracy of his descriptive character, and by the correct result at which he arrived, viz., that the *Victoria* is truly and generically distinct from *Euryale*, which in its similar habit, inferior germen, and the prickly nature of the foliage, petioles, peduncles, and ovaries, it so completely resembles, that, as has been previously observed, both Poeppig and Guillemin unhesitatingly referred it to that genus.

Still it is obvious that, as far as the public was concerned, with the exception of individuals versed in scientific Botany, hardly any one could be gratified with the sight of a figure, and still fewer with that of a specimen of this wonderful production. The former was only known in the portfolio of the 'London Botanical Society', where we believe the original drawing, made by Sir R. Schomburgk, is deposited, along with a letter* addressed to that body, and published by Mr. Gray in the 22nd vol. of the 'Magazine of Zoology and Botany (Edinburgh, 1838, p. 440.)'; also by the twenty-five copies of the beautiful, but unpublished plates of Dr. Lindley, above mentioned; to which we must add a splendid private delineation of the plant, of the natural size, placed in the alcove of a greenhouse at Chiswick, which has more than once been thrown open to public view by the noble proprietor, on the days of the Horticultural Society's fêtes; while, with regard to specimens, actually none existed, save the imperfect ones already alluded to, which have been presented by the Geographical Society of London to Dr. Lindley.

But before proceeding to speak of the fortunate circumstances which gave us possession of specimens, and with them the power of representing this noble plant, it is only right to mention what the French botanists have written upon the subject. Dr. Lindley's excellent description was the means of directing their attention to those specimens especially which had been sent to Paris by M. D'Orbigny from Corrientes. In the 13th volume of the Annales des Sciences Naturelles (1840), M. Guillemin has published his 'Observations sur les Genres *Euryale* et *Victoria*,' but he throws no new light whatever upon the subject; nor could it be expected, from the condition of the specimens in the Museum of Paris. Nor would he probably have criticised the view taken of the genus by Dr. Lindley as he has done, had he been acquainted with the article on *Victoria regia*, above quoted, in the miscellaneous matter of the Botanical Register, vol. 24. p. 9. This notice by M. Guillemin is, however, followed in the same volume by a more interesting but popular account of *Victoria*, by M. A. D'Orbigny, who claims to himself the priority of discovery; while, strangely enough, he alludes at the same time to Haenke (who travelled about 1801), and then to Bonpland, as the first persons to meet with this splendid aquatic. Our readers will be glad to peruse his own words, which we here give, translated from the 'Annales', only omitting a little expression of vexation that a botanist belonging to another country should have the privilege of first laying a scientific description of this gorgeous plant before the world.

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* Under the title of "Dr. Robt. H. Schomburgk's description of *Victoria Regina*, Gray": but unaccompanied by any botanical definition. Dr. Lindley's specific name is "*regia*," and this appears to have been published in a very early number of the "Botanical Register for 1838'; while Mr. Gray's name "*Regina*" is given in a later number of the 'Magazine of Natural History' for the same year.

"If there exist in the Animal Kingdom creatures, whose size, compared with our own, commands admiration by their enormous stature; if we also gaze with wonder on the giants of the Vegetable Kingdom, we may well take especial pleasure in surveying any peculiarly wonderful species of those genera of plants which are already known to us only in more moderate dimensions. I shall endeavour to express not only my own feelings, but those of M.M. Bonpland and Haenke, for we were all alike struck with profound emotion, on beholding the two species of *Victoria* which form the subject of this note.

"For eight months I had been investigating, in all directions, the province of Corrientes, when, early in 1827, descending the river Paranà, in a frail Pirogue, I arrived at a part of this majestic stream, where, though more than 900 miles distant from its junction with the Rio Plata, its breadth yet nearly attained a league. The surrounding scenery was in keeping with this splendid river; all was on a grand and imposing scale, and being myself only accompanied by two Guaranï Indians, I silently contemplated the wild and lovely view around me; and I must confess that, amid all this watery waste, I longed for some vegetation on which my eye might rest; and longed in vain!

"Ere long, reaching a place called the Arroyo de San Josè, I observed that the marshes on either side the river were bordered with a green and floating surface; and the Guaranis told me that they called the plant in question "Yrupé", literally water-platter: from *y*, water, and *rupé*, a dish. Its general aspect reminded me of our *Nénuphar*, belonging to the family *Nymphæaceæ*. Nearly a mile of water was overspread with huge round margined leaves, among which shone, sprinkled here and there, the magnificent flowers, white and pink, scenting the air with their delicious fragrance. I hastened to load my Pirogue with leaves, flowers and fruits: each leaf, itself as heavy as a man could carry, floats on the water by means of the air-cells contained in its thick projecting innumerable nerves, and is beset, like the flower-stalks and fruit, with long spines. The ripe fruit is full of roundish-black seeds, white and mealy within.

"When I reached Corrientes, I hastened to make a drawing of this lovely water-lily, and to show my prize to the inhabitants; and they informed me that the seed is a valuable article of food, which, being eaten roasted like maize, has caused the plant to be called Water-Maize ('Maïs del Agua'). I afterwards heard from an intimate friend of M. Bonpland, the companion and fellow-labourer of the famous Humboldt, that having visited accidentally, eight years previously to my visit, a place near the little river called Riochuèlo, he had seen from a distance this superb plant, and had well nigh precipitated himself off the raft into the river in his desire to secure specimens; and that M. Bonpland had been able to speak of little else for a whole month. I was so fortunate as to get dried leaves, flowers and fruits, and also to put other specimens in spirits; and about the end of 1827, I had the delight of sending them, with my other Botanical and Zoological collections, to the Museum of Natural History at Paris.

"Five years afterwards, when travelling in Central America, in the country of the wild Guarayos, a tribe of Guaranis or Caribs, I made acquaintance with Father La Cueva, a Spanish Missionary, a good and well-informed man, beloved for his patriarchal virtues, and one who earnestly devoted himself to the conversion of the natives. The traveller, after spending a year among Indians, may easily appreciate the privilege of meeting with a human being who can understand and exchange sentiments with him; and I eagerly embraced the opportunity of conversing with this venerable old man, who had passed thirty years of his life among savages. In one of our interviews he happened to mention the famous botanist Haenke, who had been sent by the Spanish government to investigate the vegetable productions of Peru, and the fruit of whose labours has been unfortunately lost to science. Father La Cueva and Haenke were together in a Pirogue upon the Rio Mamoré, one of the great tributaries of the Amazon river, when they discovered in the marshes by the side of the stream, a plant which was so surpassingly beautiful and extraordinary, that Haenke, in a transport of admiration, fell on his knees and expressed aloud his sense of the power and magnificence of the Creator in His works. They halted, and even encamped purposely near the spot, and quitted it with much reluctance.

"It was some months after this interview with Father La Cueva that I was investigating the province of Moxos, the only means of travelling from one part of which to another is by water, and while I was going up the Rio de Madeiras towards the source of the Mamoré, and often thinking over in my mind the anecdote which the good old man had related to me, I beheld in an immense lake of stagnant water, which had a communication with the river, a plant of such extraordinary aspect, that I instantly concluded it must be the same as Haenke had seen. I also perceived that it was allied to the Water-Maize, already mentioned as found at Corrientes. Great was my delight to observe that this gigantic vegetable, though of the same genus, still differed specifically from that which I had seen before. The underside of the foliage and the crimson sepals were quite peculiar. Like Haenke, I made a perfect harvest of leaves and flowers; but subsequent illness, caused by alternate exposure to the blazing sun and drenching rains of these flooded plains, brought on such langour and exhaustion that I lost my specimens of this second species, and was thus deprived of the satisfaction of carrying the plant to Europe.

"The honour of naming the original and first-found plant has been forestalled by Dr. Lindley, who calls it *Victoria regia*; but to the one subsequently detected at Corrientes, I propose giving the name of *Victoria Cruziana*, in testimony of my obligations to General Cruz, whose kindness mainly contributed to the successful issue of my journey to Bolivia."

At the conclusion of M. D'Orbigny's interesting narrative, he goes on to define this so-called second species of *Victoria*; but as the sole difference pointed out by him lies in the colour of the underside of the leaves and of the flowers (*V. regia*, "foliis subtus purpureis, petalis exterioribus virgineis, interioribus roseis," contrasted with "foliis utrinque concoloribus, petalis cunctis concoloribus roseis v. albis," of *V. Cruziana*) we may, I think, without doing violence to nature, or showing any disrespect to M. D'Orbigny, consider *V. Cruziana* as a mere variety, if it even deserve such a distinction, of *V. regia*. No one can have examined the aquatic plants, either of our own or of foreign countries, without remarking that those parts which come in contact with the fluid are apt to turn purple, without any apparent cause for such change.

It now only remains, before completing the historical narrative of this plant, to say that the specimens from which the accompanying analyses are made, are exclusively derived from Mr. Bridges. On his return from his journey through Bolivia, of which some particulars are given at p. 571. of vol. 4. of our 'London Journal of Botany', Mr. Bridges detected the *Victoria regia* in considerable abundance, and brought home, in 1846, seeds in wet clay and well-dried foliage; also flowers, preserved in spirits. It is to be regretted there were no ripe capsules (ours is drawn from the figure of Sir R. Schomburgk), and of the seeds the majority were decayed; so that out of twenty-two which we purchased, only two have germinated, the rest being in a state equally unfit for examination and description.

We lament extremely that Mr. Bridges' severe illness puts it totally out of his power to give any information respecting his collecting this plant, or indeed of its exact locality.* We have always understood the latter to be in some part of the Republic

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* Happily the improved state of Mr. Bridges' health has enabled him to communicate to us the following information; but which has only come, as it were, at the twelfth hour, after our whole description had been corrected and made ready for press. We are therefore compelled to give it in the form of a note.

"During my stay at the Indian town of Santa Anna, in the province of Moxos, Republic of Bolivia, during the months of June and July, 1845, I made daily shooting excursions in the vicinity. In one of these I had the good fortune (whilst riding along the woody banks of the river Yacuma, one of the tributary rivers of the Mamoré) to come suddenly on a beautiful pond, or rather small lake, embosomed in the forest, where, to my delight and astonishment, I discovered, for the first time, "the Queen of Aquatics," the *Victoria regia*! there were at least fifty flowers in view, and Belzoni could not have felt more rapture at his Egyptian discoveries than I did in beholding the beautiful and novel sight before me, such as it has fallen to the lot of few Englishmen to witness. Fain would I have plunged into the lake to procure specimens of the magnificent flowers and leaves; but knowing that these waters abounded in Alligators, I was deterred from doing so by the advice of my guide, and my own experience of similar places. I now turned over in my thoughts how and in what way flowers and leaves might be obtained, and I clearly saw that a canoe was necessary, and therefore promptly returned to the town, and communicated my discovery and wants to the Correjidor or Governor, Don José Maria Zarate, who with much kindness immediately ordered the Cacique to send Indians with a yoke of oxen for the purpose of drawing a canoe from the river Yacuma to the lake. Being apprised that the canoe was in readiness, I returned in the afternoon, with several Indians to assist in carrying home the expected prize of leaves and flowers. The canoe being very small, only three persons could embark; myself in the middle, and an Indian in the bows and stern. In this tottering little bark we of Bolivia; perhaps the very spot where it was first found by Haenke, and afterwards by D'Orbigny. Seeing, indeed, that *V. regia* has been detected in Bolivia (Rio Mamoré), in the Amazons; in Berbice and in Corrientes (Paranà) rivers; the first

rowed amongst magnificent leaves and flowers, crushing unavoidably some, and selecting only such as pleased me. The leaves being so enormous I could find room in the canoe for but two, one before me and the other behind; owing to their being very fragile, even in the green state, care was necessary to transport them; and thus we had to make several trips in the canoe before I obtained the number required. Having loaded myself with leaves, flowers, and ripe seed-vessels, I next mused how they were to be conveyed in safety; and determined at length upon suspending them on long poles with small cord, tied to the stalks of the leaves and flowers. Two Indians, each taking on his shoulder an end of the pole, carried them into the town; the poor creatures wondering all the while what could induce me to be at so much trouble to get at flowers, and for what purpose I destined them now they were in my possession.

"This splendid plant has, undoubtedly, a very extensive geographical range; the town of Santa Anna is situated between the 13th and 14th parallels of south latitude, which I consider about its most southern limit, because I sought in vain for it farther south, in the department of Santa Cruz de la Sierra. May we not justly suppose that it is also found as far north of the Equator? thus occupying about 28° of northern and southern latitude. Dr. Weddel, the botanist of the French expedition across the American Continent, informed me that he had found it about the same latitude in Brazil. It occupies, without doubt, many of those immense lakes lying between the rivers Mamoré, Beni and the Amazons; that central part of the Continent, yet but little known. The Indians are well acquainted with the plant; the Moimas or natives of Santa Anna call it in their language "Morinqua"; and the neighbouring nation, the Cayababas, natives of the town of Exaltacion, know it under the name of "Dachocho." The leaves are round, varying considerably in size, the largest about four feet in diameter. They float on the surface of the water; the colour is a very light green, in age inclining to yellow, some of them even when young possess a yellow hue. The margins of the leaf are turned upwards, giving the leaf a singular appearance, somewhat like a floating dish; this margin and the under surface of the leaf are of a dark brown colour, while the part under water often assumes a purple tinge. The costæ are of the same colour. The spines incline to the interior of the leaf, and in some leaves are nearly white.

"The *Victoria* grows in 4–6 feet of water, producing leaves and flowers, which rapidly decay and give place to others. From each plant there are seldom more than four or five leaves on the surface, but even these in parts of the lake where the plants were numerous, almost covered the surface of the water, one leaf touching the other. I observed a beautiful aquatic bird, (*Parra* sp.?) walk with much ease from leaf to leaf, and many of the *Muscicapidæ* find food and a resting-place on them. The plant occupies almost exclusively the water, with the exception of a few floating aquatics of small dimensions, amongst which I saw a beautiful *Utricularia*.

"The blossoms rise six and eight inches above the surface, expanding first in the evening, when they are pure white; changing finally (and by exposure to the sun) to a most beautiful pink or rose colour, flowers may be seen, at the same time, partaking of every tinge between the two hues, the recently expanded being pure white and the adult rosy, almost sinking under water to ripen its seed and produce a new race of plants when required. The largest flowers I saw measured from ten inches to one foot in diameter.

and last being separated (at their embouchures) by thirty-five degrees of longitude, we must conclude that this magnificent Water-Lily is, like the generality of Aquatics, a plant of wide distribution, and probably a not uncommon inhabitant of the still waters of all those great rivers which intersect the immense plains eastward of the Andes.

"I had an opportunity of experiencing the fragrance of the flowers. Those I collected for preserving in spirits were unexpanded, but on the point of opening; on arriving at the Government House, in the town, I deposited them in my room, and returning after dark, I found to my surprise that all had blown and were exhaling a most delightful odour, which at first I compared to a rich Pine-apple, afterwards to a Melon, and then to the *Cherimoya*; but indeed it resembled none of these fruits, and I at length came to the decision that it was a most delicious scent, unlike every other, and peculiar to the noble flower that produced it.

"The calyx is green, darker than the leaves, as is the seed-vessel.

"With the assistance of the Indians we got out of the water two entire plants, and from their appearance I should say the *Victoria* is decidedly perennial. Each plant had from twenty to thirty foot-stalks of flowers and leaves, in all stages; some nearly decayed to the base, others half-way down the stem, whilst others had just lost the floating portion. The same was observed in the petioles; some bearing the seed-vessel perfect, with ripe seed; others the expanded flower; and near the crown or centre of the plant was just issuing the tender flower-bud. With a knife we cut or trimmed the foot-stalks, when the trunk (if I may use the comparison) somewhat resembled a *Zamia*, and in length was about eighteen inches or two feet. At the base and between each foot-stalk protrudes a mass or cluster of fleshy, hollow roots, about the size of a straw, or larger, and varying in colour from brown to white, or nearly so; a succession of these roots is formed, as the new leaves are thrown out from the centre of the plant; nature having made a beautiful and wise provision for this plant, as in all her other works. The base of the trunk, or rather stem, situated in the soft mud, appears to decompose in proportion as new leaves and flowers issue from the centre, keeping the plant from elevating itself above water, which but for such an arrangement, might be the case, from the rapidity of its growth.

"From what I observed of the nature and habits of this most interesting plant, I conclude that it cannot and does not exist in any of the rivers, where the immense rise and fall, of twenty feet, would leave it dry, during many months of the year, especially in the season when there is no rain. The lagoons, being subject to little variation in the height of their waters, are the places where it grows in all its beauty and grandeur.

"The *Victoria* appears to delight in parts of the lake fully exposed to the sun, and I observed that it did not exist where the trees overshaded the margins.

"The vegetation surrounding the locality of the *Victoria* was not of that splendid character that I could have wished. It wanted those noble Palms, the *Mutacú* and *Palma real*, which so beautifully adorn the banks of the Mamoré, to have made a perfect and enchanting picture with the *Victoria* in the waters. The trees belonged to genera new to me and peculiar to this level part of the country. Amongst the shrubs I observed two species of *Bauhinia*, and a fine purple-flowered *Bignonia*, climbing even to the summit of the trees."

THOMAS BRIDGES.

Prospect Place, Bristol. December, 16th. 1846.

The following are the recorded stations for *V. regia*: Bolivia, at Rio Mamoré, upper tributary of the Amazons, found there by Haenke, about 1801, and some time afterwards seen by Bonpland; Igaripé, a branch of the Amazons, Poeppig (1832); Paranà and Riochuèlo rivers, province of Corrientes, on the frontier of Paraguay, D'Orbigny (1827); Rio Madeiras, near the sources of the Mamoré, between the confluence of the rivers Aperé and Tijamuche, province of Moxos, Bolivia, D'Orbigny (1832); Berbice river, British Guiana, Sir R. Schomburgk (1837): and also in the Rupununi, a tributary of the Essequibo* (1842); Bolivia, Rio Yacuma, tributary of the Rio Mamoré, Bridges (1844). The Mamoré is a tributary of the Amazons, as the Paranà is of the Rio Plata, and both consequently empty themselves into the Atlantic Ocean. It does not appear that the *Victoria regia* has been found in any water flowing into the Pacific; probably because of the rapid movement of those streams.

Of the difference between the genera *Euryale* and *Victoria* our more perfect specimens enable us to add some particulars beyond those already indicated by Dr. Lindley; and the subjoined tabular view of their discrepancies will put the matter in the clearest light.

EURYALE.	VICTORIA.
Sepals persistent.	*Sepals* deciduous.
Petals 20–30, apparently in 3–4 series, smaller than the calyx, diminishing in size towards the interior, but all free, uniform in shape, in no way changed in form or in texture.	*Petals* very numerous, in several series, longer than the calyx, the inner gradually narrower, acuminated, and indurated, passing into the stamens (as in *Nymphæa*) and united with them into an elevated ring, forming a prolongation of the torus.
Stamens numerous, uniform and all fertile and free; the inner ones generally smaller. *Filaments* filiform, delicate, short. *Anthers* terminal, oval, obtuse, free, not apparently adnate with the filaments. (*Roxb. fig.*)	*Stamens* united at the base in several series, the free portions subulate, fleshy, firm, bearing the elongated *anther-cells* below the acuminated point, and adnate with the *filaments*. Innermost stamens united into a monadelphous body and sterile.
Ovary oval, "6–8-celled? cells irregularly (?) placed and each containing 6–10 seeds, attached to the partitions and to the exterior angles of the cells,"	*Ovary* turbinate, with a deep cavity at the top and a central projecting column. Around the cavity, and placed with great regularity, are from 27–30

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* In the same year Sir R. H. Schomburgk had the gratification of showing this plant in its native waters to the officers of the 1st West India Regiment, when proceeding up that river to take military possession of Pirara, at which time it was in full flower. The Rev. Thomas Youde, Sir Robert informs us, made several attempts to bring plants from the interior to the coast, but they never survived many weeks.

Roxb.; concave at the top, the edge alone slightly and very obscurely lobed, and this concavity representing the stigma, destitute of central projecting column. No style nor evident stigmas.	cells, immersed in a pulpy substance and partly below the hollow, the parietes of which have reticulated funiculi, bearing 10–12 ovules;—upon the edge of this cavity, in a circle within the stamens, are situated as many very large *stigmas*.
Fruit a nearly round berry, swelling out in various places, by the growth of the seeds within, and crowned with the connivent persistent sepals.	*Fruit* a turbinate truncated berry, with a deep hollow disc and persistent central column, even and regular on the outside.

We do not attempt to contrast the structure of the seeds; but the above distinctive characters are surely abundantly sufficient to prove the correctness of Dr. Lindley's views, in establishing the genus *Victoria*.

Descr. Aquatic? *Root* perennial? "large and tuberous, provided with numerous filiform, or cylindrical fibres, which abound along their whole length with air-tubes. The *tuber* resembles the thick rhizoma of some *Aspidium*, and is of a brown colour externally, white within, but when cut through the internal substance soon changes to purple," (Schomburgk in litt.). *Stem* none. *Petioles* long, terete, radical, clothed with copious prickles; "they assume a diagonal direction when the water is low, and rise with the water so as to be perpendicular, and during the floods, the leaf, as well as the petiole, is entirely submerged. *Leaves* (usually) floating, of prodigious size, four to six and a half feet in diameter (twelve to nineteen feet in circumference), at first oval with a deep narrow cleft or sinus at one end, in age almost exactly orbicular, peltate, plane but with a considerable depth of margin, which is two to four or five inches broad, and turned up so as to form an elevated rim, like that of a tea-tray; the upper side of this vast leaf is a full green, marked with numerous reticulations which form somewhat quadrangular areolæ; the underside deep purple, sometimes green, according to D'Orbigny, clothed with a short spongy pubescence, furnished with copious very prominent flat veins, radiating from the point of insertion of the petiole and extending to, and through the raised margin, but there becoming less elevated, till they disappear at the very edge; these are united by other deep flattened nerves, and they again by cross ones of less elevation, and all are more or less beset with prickles, varying in length, sharp and horny, subulate, that is, swollen at the base, very much like the sting of a nettle in shape.

Peduncle or *scape* radical, longer than the petiole and rising above the surface of the water when in flower, terete, prickly, varying in size, in the recent plant sometimes an inch thick, single-flowered. *Flower* of the same gigantic dimensions in proportion with the leaf; in *bud* pear-shaped (Tab. 4277. f. 1); when expanded our specimen here figured (Tab. 4276) measured rather more than a foot in diameter, (giving a circumference of thirty nine inches); but specimens in their native rivers, have been ascertained to be fifteen inches in diameter (forty-five in circumference), fragrant. The *calyx* is deeply quadrifid; the tube turbinate, tawny-coloured, very prickly, adnate with the ovary; the segments or *sepals* large, oval, purple-brown, concave, deciduous, a little prickly on the outside towards the base, rather shorter than the petals. From within, the mouth of the tube of the calyx (at the very base of the segments) extends itself into an annular *torus*, which bears the petals and stamens. *Petals* very numerous, the outer ones spreading and longer than the calyx, oblong, concave, obtuse, white, the inner ones gradually becoming narrower, much acuminated and insensibly passing into the filaments and becoming deeply coloured with purple or full rose. *Stamens* (perfect ones) in about two series, large, subulate, fleshy, gracefully incurved below, the rest erect; *anther-cells* double, linear, introrse, occupying the inner face of the filament, below the apex. Within these fertile stamens is another annular circle bearing a double series of *abortive filaments* only; these, with their lower portion, form an arch over the *stigmas*, the upper half being erect.

Ovary adnate with the whole length of the prickly tube of the calyx, and therefore turbinate like it, with a deep radiated depression or cavity at the top, and in the centre an elevated umbo or short pyramidal column: it may be therefore termed cup-shaped, with a thick fleshy base, having air-cells or cavities extending downwards into the peduncle; in the upper part of this substance, forming, as it were, the rim of the cup, there stand in a circle, placed with the greatest regularity, about twenty-six to thirty compressed *cells*, their parietes bearing several *ovules* attached to reticulated *funiculi*. From the inner edge of the cavity, just beneath the inner crown of sterile stamens, and articulated, as it were, at their base (or the base of the torus) rises a circle of *stigmas*, as many as there are cells in the ovary, large, fleshy, ovate, acuminated, laterally compressed, but geniculated, so to speak, in the middle; that is, the lower half of them is erect, and the upper half bent at an angle so as to lie horizontally over the cavity at the top of the ovary, and parallel or on the same plane with the base of the sterile stamens: the back of these stigmas is slightly grooved and is the stigmatic surface.

I much regret I can say nothing of the *fruit* from my own observation; but judging from the figure given of it by Sir Robert Schomburgk (see our Tab. 4278. f. 6), it is a large cyathiform, truncate, fleshy, green, prickly *berry*, the margin even; bearing many oval, dark brown, almost black *seeds*.

TAB. 4275.

An exceedingly reduced representation of the plant, *in situ*, chiefly done from Sir R. H. Schomburgk's scene in his 'Views in British Guiana'; showing the flower, unexpanded bud, and fully formed leaves and fruit.

TAB. 4276.

This plate exhibits a flower of the *natural size*, delineated from a very perfect specimen in spirits, in the author's possession, brought by Mr. Bridges from Bolivia. A portion of the leaf is given, supposed to be a transverse section taken near the petiole, but so much fore-shortened (to allow of its being introduced at all) as to convey little idea of the magnificence of the entire foliage; drawn from a fine dried specimen in the author's possession, obtained from Bolivia.

TAB. 4277.

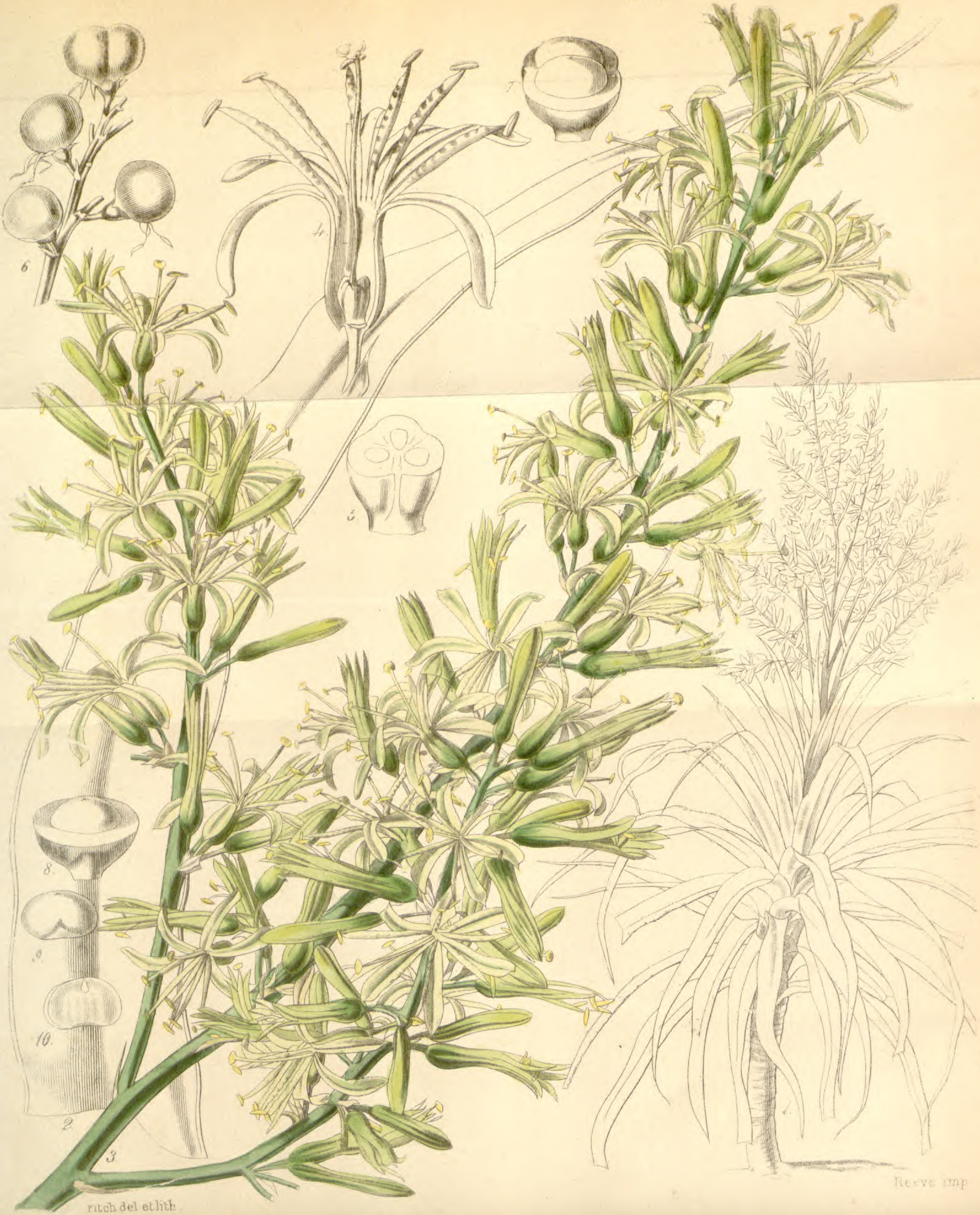
Fig 1. Exhibits an unexpanded flower (from Bolivia):—*natural size*. Fig. 2. A portion of the underside of the leaf (*natural size*) showing more particularly the remarkable venation. Fig. 3. A vertical section of the inferior ovary, with the stamens (sterile and fertile), and exhibiting the mode of union of the bases of the petals and stamens on the elevated rim (or torus), at the mouth of the calycine tubes. This section is through two of the many cells of the ovary, in which are seen the parietal reticulated funiculi, with the attached ovules. The lower part of the ovary contains air cavities. The upper part shows the radiated cavity of the top of the germen, with the central column or umbo, and the curious stigmas at the edge of said cavity:—*natural size*.

TAB. 4278.

Fig. 1. Vertical section (*natural size*) of a portion of the torus, or elevated rim, at the inside of the tube of the calyx and which bears a portion of a calycine segment, and petals which gradually pass into stamens; within, is an inner circle or crown of sterile stamens, united at their base into an arched ring over the stigmas. Fig. 2. Stamen:—*slightly magnified*. Fig. 3. Transverse section of an ovary through the centre of the cells: showing the position of those cells with relation to the cavity, in which latter is seen the central umbo or column. Fig. 4. Two ovules attached to the funiculus:—*much magnified*. Fig. 5. Stigma (*natural size*) showing its stigmatic surface on the back. Fig. 6. Outline sketch of a fruit (*natural size*), copied from Schomburgk.

(The colouring of the above is done in part from Sir Robert Schomburgk's figures, and in part from description.)

4279.



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Fitch del et lith.

Reeve imp

TAB. 4279.

CORDYLINE RUMPHII.

Rumphius' Cordyline.

Nat. Ord. ASPHODELEÆ (*Br.*).—HEXANDRIA MONOGYNIA.

Gen. Char. Perianthium campanulatum, 6-fidum, æquale, deciduum. *Stamina* 6, fauci inserta. *Filamenta* subulata, glabra. *Antheræ* versatiles basi bifidæ. *Ovarium* loculis polyspermis. *Stylus* 1. *Stigma* parvum, trilobum. *Bacca* globosa, trilocularis. *Semina* plurima (vel abortione solitaria), umbilico strophiolato. *Embryo* axilis, *radicula* centripeta.—Caudex *fruticosus.* Folia *elongato-lanceolata, nervoso-striata.* Panicula *terminalis, e spicis alternis multifloris.* Flores *bibracteati, bractea altera interiore.* Pedicelli, *dum adsunt, cum perianthio articulati. Br.*

CORDYLINE *Rumphii*; foliis lineari-canaliculatis longe acuminatis marginatis reflexis, panicula terminali ampla erecta, filamentis incrassatis hinc rugosis, bacca tri-abortu di-monosperma.

SANSEVIERA fruticosa. *Bl.* "*Enum. Fl. Jav. v.* 1. *p.* 11." *Roem. et Sch. v.* 7. *p.* 361 *and* 1679.

TERMINALIA angustifolia. *Rumph. Herb. v.* 5. *p.* 81. *t.* 35.

A greenhouse plant of graceful habit, which has long been an inhabitant of a cool stove in Kew Gardens, where it bears its copious greenish-white flowers, succeeded by the orange berries, in July; but whence introduced, is not recorded. The figure of Rumphius, above quoted, leaves no doubt of that being the same plant; it is consequently a native of Amboyna. Blume's description and reference to Rumphius make it equally certain that our plant is the *Sanseviera fruticosa* of that author, and consequently a native of the 'mountains of Java'; but equally certain is it, that neither in habit, nor in essential character, can it be referred to *Sanseviera.* Its place is near *Dracæna* and *Cordyline.* If *D. Draco* be the type of the former genus, I should be unwilling to associate this with the true 'Dragon's blood'; with *Cordyline* it sufficiently accords in habit and in essential characters, save that the seeds are, in the state of the ovules even, always solitary in each cell, whereas they ought to be numerous, as shown in *Dracæna australis* (Bot. Mag. Tab. 2835), now referred to *Cordyline.* In all probability, this plant will constitute a new genus, in which the inflated and rugose filaments of the stamens contribute to afford characters. In this respect it differs from *Dracæna reflexa*, Lam. (*Cordyline*, Commers.), and from *D. cernua*, Jacq., both of which bear a considerable resemblance to our plant.

Descr. *Stem* simple, terete, shrubby, two to three feet high, marked with the scars of fallen leaves, and bearing foliage only at the summit. *Leaves* a foot and a half long, linear-lanceolate, much and gradually acuminate, dark green, with a pale narrow cartilaginous edge or margin, all channelled, and more or less reflexed. *Panicles* terminal, large, branched from the very base. *Pedicels* bracteated. *Perianth* streaked green and white; the *tube* slightly swollen at the base; *segments* linear, as long as the tube, soon reflexed. *Filaments* much exserted from the mouth of the tube, club-shaped, inflexed, transversely wrinkled or puckered, and suddenly coming to a point, which bears the small oblong versatile *anthers*. *Ovary* on a short, thickened *stipes*, obovate, three-lobed. *Berry* orange, globose or didymous, bearing one or two (rarely more) kidney-shaped, smooth, yellowish *seeds*.

Fig. 1. Entire plant, much reduced.—2. Apex of leaf. 3. Portion of a panicle:—*natural size*. 4. Perianth laid open. 5. Ovary cut through transversely. 6. Berries:—*natural size*. 7. Berry with two, and 8, berry with one seed, laid open. 9. Seed. 10. The same laid open:—*magnified*.

4280

Fitch del et lith

Reeve imp

TAB. 4280.

EXOGONIUM PURGA.

Purga, or *True Jalap*.

Gen. Char. Sepala quinque. *Corolla* tubulosa. *Stamina* exserta. *Stylus* 1. *Stigma* capitatum, bilobum. *Ovarium* biloculare, loculis biovulatis. *Chois.*

EXOGONIUM *Purga*; foliis cordatis acuminatis integerrimis utrinque glabris, pedunculis 2–3-floris, tubo corollæ calycem obtusum quadruplo superante, limbo hypocraterimorpho, lobis obtusis subemarginatis. *Chois.*

EXOGONIUM Purga. *Benth. Pl. Hart. p.* 46, *and* E. dumosum,* *ejusd.*

IPOMŒA Purga. *Wenderoth, Pl. Central. v.* 1. *p.* 457. *Choisy, in DC. Prodr. v.* 9. *p.* 374. *Lindley, Flor. Med. no.* 809. *Bot. Reg. Misc.* 1839, *n.* 836. *Nees ab Esenbeck, Pl. Off. Suppl. v.* 3. *t.* 13. *Hayne, Darstell. und Beschreib. Arzneikund gebraiechlich Pflanzen,* 1833, *t.* 33, 34.

IPOMŒA Schiedeana. *Zuccarsini, Abhand. de Bagn. Acad. du Wissenschaft.* 1832.

IPOMŒA Jalapa. *Nutt. and Coxe, Amer. Journ. of Med. Science, Feb.* 1830, *t.* 7. *Royle Ill. Him. p.* 308 (*non Pursh.*).

CONVOLVULUS Jalapa. *Schiede in Linnæa,* 1830, *p.* 473. (*non Linn.*)

Although *Jalap* has been used in European medicine for nearly two centuries and a half, it is only within a few years that its botanical source has been correctly ascertained. The plant long cultivated as yielding the true Jalap, in the stoves of Europe, and among the rest in the Botanic Gardens of Edinburgh, is the *Convolvulus Jalapa* of Linnæus and Willdenow, or *Ipomœa macrorhiza*, of Michaux, a native of Vera Cruz. But, between the years 1827 and 1830, it was proved by no fewer than three independent authorities, M. Ledanois, a French druggist, resident at Orizaba, in Mexico, Dr. Coxe, of Philadelphia, through information supplied by Mr. Fontanges, an American gentleman, who lived at Jalapa, and Schiede, the botanical traveller, from personal examination, that the drug of commerce is obtained, not from the hot plains around Vera Cruz, but from the cooler hill country near Jalapa, about 6,000 feet above the level of the sea, where it is exposed to frost in winter-time; and that the plant which yields it is an entirely new species. Schiede introduced the plant for the first time into England; and it has been cultivated in various Botanic Gardens of Germany. In this country, it was probably first grown in the Botanic Garden of Edinburgh, from a tuber, sent by Dr. Coxe of Philadelphia to Dr. Christison, in 1838. The late Dr. Graham could not describe it at that time, because, owing to ignorance of its habits, it was forced in the stove, and died the same year, after showing numberless flower-buds, of which one only became partially developed. In 1844, a plant, from the Chelsea Botanic Garden, cultivated in a cold frame during the winter and spring, and uncovered during summer and autumn, flowered luxuriantly in the Edinburgh Garden, in the month of September. But the crown of the tuber was injured by frost the subsequent winter, and the tuber was thus killed. A drawing was made by Dr. Graham, but it has not been found among his papers. Fortunately, Mr. M'Nab, on removing specimens for the Herbarium, resolved to try whether the plant could be raised from slips, and the experiment has proved completely successful. A tuber of the size of a hasel-nut, formed in the course of three months. The stem made little progress the next summer, but when removed to the cold frame last spring, formed the plant from which the description and drawing have been taken.

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* Choisy is no doubt right in referring Mr. Bentham's *E. dumosum* to *E. Purga*; but surely wrong in transferring these plants from *Exogonium* (corolla tubulosa, stamina exserta), to *Ipomœa* (corolla campanulata, stamina inclusa!).

The plant belongs to the genus *Exogonium* of Choisy, as defined in De Candolle's 'Prodromus,' although the author places it under the genus *Ipomæa,* from which it is at once distinguished by its exserted stamens. It grows on the Mountains of Mexico. Schiede found it at a great elevation, on the eastern slope of the Mexican Andes, near Chiconquinaco; and also on the eastern slope of Cofre de Perote. He gives an account of his discovery in the 'Linnæa' for 1830. Hartweg gathered it in Mexico, and it has been described by Bentham, from his specimens.

Descr. *Tuber* roundish, becoming as large as a moderate-sized turnip, brown externally, whitish internally, giving rise to numerous rootlets and stems. *Stem* twining from right to left, spirally twisted, glabrous, marked with numerous ridges and furrows (twenty or more), branching more or less, purple-red, extending ten or twelve feet. *Leaves* alternate, exstipulate, petiolate, cordate or sagittato-cordate, deeply lobed at the base, acuminate, entire, glabrous on both sides, slightly rugose, dull green above, pale or subglaucous below, reticulated; *veins* radiating at the base, prominent on the lower surface of the leaf and channelled on the upper. *Petioles* about two inches long, shorter than the leaves, thick, grooved above, rounded below. *Peduncles* reddish, axillary, erect, twisted, wiry, about one inch and a half long, two- to three-flowered (rarely one-flowered) with a small triangular bractlet at the base of the pedicels or partial flower-stalks, which are about three quarters of an inch long, and thickened upwards. On making a section of the pedicel, near its upper part, the cellular tissue in the centre was seen, under the microscope, to be arranged in a stellate manner. *Inflorescence* centrifugal. *Calyx* glabrous, of five, somewhat elliptical, obtuse, concave, adpressed *sepals*, membranaceous at their margins, the two outer ones smaller. *Corolla* shining, glabrous, between funnel- and salver-shaped; of a purplish-red colour; *tube* slightly contracted at its juncture with the limb, then widening, and ultimately tapering downwards, about two inches long, four times the length of the sepals, purplish-red outside, whitish within; *limb* expanded, two and a half inches across, somewhat rugose or undulated, of five blunt slightly notched lobes and shallow sinuosities between them. Beautiful spiral vessels may be seen in the corolla under the microscope. *Æstivation* contorted. *Stamens* five, colourless, exserted beyond the tube, and, towards one side of the throat, shorter than the limb; *filaments* unequal in length, from two to two and a half inches long, inserted near the base of the tube of the corolla, where they are flattened, with scattered hairs or tooth-like projections towards their lower half; *anthers* two-lobed, opening longitudinally, innate, introrse. *Pollen* spherical, exteriorly marked with numerous prominent processes. *Pistil* rather longer than the longest stamens; *stigma* colourless, two-lobed, capitate, tubercular, i. e. covered with numerous projecting cellular processes. *Style* about three inches long, slender, tapering. *Ovary* superior, conical, gradually ending in the style, surrounded at the base by a thickened annular disc of a yellowish colour, two-celled, with two *ovules* in each cell; *ovules* somewhat triangular, anatropous.

For the medical history of the plant, and the account of its introduction into the country, I am indebted to the kindness of Professor Christison.

J. H. Balfour.

4281

Fitch del et lith.

Reeve imp.

TAB. 4281.

BEGONIA FUCHSIOIDES.

Fuchsia-like Begonia, or *Elephant's Ear*.

Nat. Ord. BEGONIACEÆ.—MONŒCIA POLYANDRIA.

Gen. Char. (*Vide supra*, TAB. 4172).

BEGONIA *fuchsioides*; subdioica, caule erecto ramoso glaberrimo, foliis semiovatis obliquis subfalcatis acutis serratis ciliatis, paniculis in ramos terminalibus floribusque pendentibus; masc. sepalis 4 in globum conniventibus quorum 2 int. oblongis minoribus, 2 ext. majoribus ovatis carnosis cymbiformibus; fœm. petalis 5 ovatis conniventibus, ovario fructuque trialato ala unica multo majore, pedicellis triquetris.

A most lovely new *Begonia*, detected by Mr. Purdie on the Ocaña mountains of New Grenada, during his mission for the Royal Gardens of Kew. It is easily propagated by cuttings, grows rapidly, bears small but copious foliage, and is a plant to which he particularly requested our attention, on account of the copious, elegant, drooping, red flowers, at first sight resembling those of a *Fuchsia*; and because it is much eaten to allay thirst by the Arrieros (mule-drivers) of the country. He also observes that the globular buds (meaning, probably, the buds of the fertile blossoms, which are globular) contain a fluid, which, together with the acid of the flowers, proves highly grateful in the dry season and where there are no rivers. It has bloomed during the autumn months with Mr. Veitch of Exeter, and he has at this time (December 18th) one plant three feet high loaded with the richly-coloured flowers. It has been three months in bloom, and has abundance of buds yet to expand. Our plants are now, at mid-winter, beginning to flower. It is singular that, as far as they have yet blossomed, the plants have proved only male-flowered, except the tall one of Mr. Veitch, which has one cluster of female flowers at the top, and of which two are represented at fig. 2.

DESCR. *Stem* erect, two to three feet high, terete, succulent, glabrous, slightly tinged with red. *Leaves* copious, distichous, alternate, rather small, about an inch and a half long, dark full green, obliquely oblong-ovate, slightly falcate, acute, serrated,

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glabrous, the margins obscurely ciliated, often tinged with red. *Stipules* oblong, obtuse, coloured. *Flowers* on dichotomously branched, pendent *panicles*, diœcious, rarely monœcious: all of a rich deep scarlet colour. *Pedicels* bracteated; *bracteas* lanceolate, acuminate, opposite. *Male flowers*: *Sepals* four, almost closed over the stamens; two ovate, large and boat-shaped, thick and fleshy, opposite and external; the other two smaller, oblong or approaching to obovate, slightly concave, of a thinner, almost membranaceous texture: *column of stamens* forming an ovate mass. *Female flowers*: *Sepals* five, rarely spreading, oval, nearly equal, concave. *Stigmas* six, erecto-patent, subulate, waved. *Ovary* of young fruit white, broadly obovate, triangular, the angles winged; two wings very short and one long, divergent; all red, and decurrent, so as to form a triangular pedicel.

Fig. 1. Male flower, with one (inner) sepal removed:—*magnified*. 2. Female flowers:—*natural size*. 3. Pistil (or young fruit):—*slightly magnified*.

4280

Fitch del et lith

Reeve imp

TAB. 4280.

EXOGONIUM PURGA.

Purga, or *True Jalap.*

Gen. Char. Sepala quinque. *Corolla* tubulosa. *Stamina* exserta. *Stylus* 1. *Stigma* capitatum, bilobum. *Ovarium* biloculare, loculis biovulatis. *Chois.*

EXOGONIUM *Purga*; foliis cordatis acuminatis integerrimis utrinque glabris, pedunculis 2–3-floris, tubo corollæ calycem obtusum quadruplo superante, limbo hypocraterimorpho, lobis obtusis subemarginatis. *Chois.*

EXOGONIUM Purga. *Benth. Pl. Hart. p.* 46, *and* E. dumosum,* *ejusd.*

IPOMŒA Purga. *Wenderoth, Pl. Central. v.* 1. *p.* 457. *Choisy, in DC. Prodr. v.* 9. *p.* 374. *Lindley, Flor. Med. no.* 809. *Bot. Reg. Misc.* 1839, *n.* 836. *Nees ab Esenbeck, Pl. Off. Suppl. v.* 3. *t.* 13. *Hayne, Darstell. und Beschreib. Arzneikund gebraiechlich Pflanzen,* 1833, *t.* 33, 34.

IPOMŒA Schiedeana. *Zuccarsini, Abhand. de Bagn. Acad. du Wissenschaft.* 1832.

IPOMŒA Jalapa. *Nutt. and Coxe, Amer. Journ. of Med. Science, Feb.* 1830, *t.* 7. *Royle Ill. Him. p.* 308 (*non Pursh.*).

CONVOLVULUS Jalapa. *Schiede in Linnæa,* 1830, *p.* 473. (*non Linn.*)

Although *Jalap* has been used in European medicine for nearly two centuries and a half, it is only within a few years that its botanical source has been correctly ascertained. The plant long cultivated as yielding the true Jalap, in the stoves of Europe, and among the rest in the Botanic Gardens of Edinburgh, is the *Convolvulus Jalapa* of Linnæus and Willdenow, or *Ipomœa macrorhiza*, of Michaux, a native of Vera Cruz. But, between the years 1827 and 1830, it was proved by no fewer than three independent authorities, M. Ledanois, a French druggist, resident at Orizaba, in Mexico, Dr. Coxe, of Philadelphia, through information supplied by Mr. Fontanges, an American gentleman, who lived at Jalapa, and Schiede, the botanical traveller, from personal examination, that the drug of commerce is obtained, not from the hot plains around Vera Cruz, but from the cooler hill country near Jalapa, about 6,000 feet above the level of the sea, where it is exposed to frost in winter-time; and that the plant which yields it is an entirely new species. Schiede introduced the plant for the first time into England; and it has been cultivated in various Botanic Gardens of Germany. In this country, it was probably first grown in the Botanic Garden of Edinburgh, from a tuber, sent by Dr. Coxe of Philadelphia to Dr. Christison, in 1838. The late Dr. Graham could not describe it at that time, because, owing to ignorance of its habits, it was forced in the stove, and died the same year, after showing numberless flower-buds, of which one only became partially developed. In 1844, a plant, from the Chelsea Botanic Garden, cultivated in a cold frame during the winter and spring, and uncovered during summer and autumn, flowered luxuriantly in the Edinburgh Garden, in the month of September. But the crown of the tuber was injured by frost the subsequent winter, and the tuber was thus killed. A drawing was made by Dr. Graham, but it has not been found among his papers. Fortunately, Mr. M'Nab, on removing specimens for the Herbarium, resolved to try whether the plant could be raised from slips, and the experiment has proved completely successful. A tuber of the size of a hasel-nut, formed in the course of three months. The stem made little progress the next summer, but when removed to the cold frame last spring, formed the plant from which the description and drawing have been taken.

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* Choisy is no doubt right in referring Mr. Bentham's *E. dumosum* to *E. Purga*; but surely wrong in transferring these plants from *Exogonium* (corolla tubulosa, stamina exserta), to *Ipomœa* (corolla campanulata, stamina inclusa!).

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The plant belongs to the genus *Exogonium* of Choisy, as defined in De Candolle's 'Prodromus,' although the author places it under the genus *Ipomœa*, from which it is at once distinguished by its exserted stamens. It grows on the Mountains of Mexico. Schiede found it at a great elevation, on the eastern slope of the Mexican Andes, near Chiconquinaco; and also on the eastern slope of Cofre de Perote. He gives an account of his discovery in the 'Linnæa' for 1830. Hartweg gathered it in Mexico, and it has been described by Bentham, from his specimens.

Descr. *Tuber* roundish, becoming as large as a moderate-sized turnip, brown externally, whitish internally, giving rise to numerous rootlets and stems. *Stem* twining from right to left, spirally twisted, glabrous, marked with numerous ridges and furrows (twenty or more), branching more or less, purple-red, extending ten or twelve feet. *Leaves* alternate, exstipulate, petiolate, cordate or sagittato-cordate, deeply lobed at the base, acuminate, entire, glabrous on both sides, slightly rugose, dull green above, pale or subglaucous below, reticulated; *veins* radiating at the base, prominent on the lower surface of the leaf and channelled on the upper. *Petioles* about two inches long, shorter than the leaves, thick, grooved above, rounded below. *Peduncles* reddish, axillary, erect, twisted, wiry, about one inch and a half long, two- to three-flowered (rarely one-flowered) with a small triangular bractlet at the base of the pedicels or partial flower-stalks, which are about three quarters of an inch long, and thickened upwards. On making a section of the pedicel, near its upper part, the cellular tissue in the centre was seen, under the microscope, to be arranged in a stellate manner. *Inflorescence* centrifugal. *Calyx* glabrous, of five, somewhat elliptical, obtuse, concave, adpressed *sepals*, membranaceous at their margins, the two outer ones smaller. *Corolla* shining, glabrous, between funnel- and salver-shaped; of a purplish-red colour; *tube* slightly contracted at its juncture with the limb, then widening, and ultimately tapering downwards, about two inches long, four times the length of the sepals, purplish-red outside, whitish within; *limb* expanded, two and a half inches across, somewhat rugose or undulated, of five blunt slightly notched lobes and shallow sinuosities between them. Beautiful spiral vessels may be seen in the corolla under the microscope. *Æstivation* contorted. *Stamens* five, colourless, exserted beyond the tube, and, towards one side of the throat, shorter than the limb; *filaments* unequal in length, from two to two and a half inches long, inserted near the base of the tube of the corolla, where they are flattened, with scattered hairs or tooth-like projections towards their lower half; *anthers* two-lobed, opening longitudinally, innate, introrse. *Pollen* spherical, exteriorly marked with numerous prominent processes. *Pistil* rather longer than the longest stamens; *stigma* colourless, two-lobed, capitate, tubercular, i. e. covered with numerous projecting cellular processes. *Style* about three inches long, slender, tapering. *Ovary* superior, conical, gradually ending in the style, surrounded at the base by a thickened annular disc of a yellowish colour, two-celled, with two *ovules* in each cell; *ovules* somewhat triangular, anatropous.

For the medical history of the plant, and the account of its introduction into the country, I am indebted to the kindness of Professor Christison.

J. H. Balfour.

Fitch del et lith

Reeve imp

TAB. 4281.

BEGONIA FUCHSIOIDES.

Fuchsia-like Begonia, or *Elephant's Ear.*

Nat. Ord. BEGONIACEÆ.—MONŒCIA POLYANDRIA.

Gen. Char. (*Vide supra*, TAB. 4172).

BEGONIA *fuchsioides*; subdioica, caule erecto ramoso glaberrimo, foliis semiovatis obliquis subfalcatis acutis serratis ciliatis, paniculis in ramos terminalibus floribusque pendentibus; masc. sepalis 4 in globum conniventibus quorum 2 int. oblongis minoribus, 2 ext. majoribus ovatis carnosis cymbiformibus; fœm. petalis 5 ovatis conniventibus, ovario fructuque trialato ala unica multo majore, pedicellis triquetris.

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DESCR. *Stem* erect, two to three feet high, terete, succulent, glabrous, slightly tinged with red. *Leaves* copious, distichous, alternate, rather small, about an inch and a half long, dark full green, obliquely oblong-ovate, slightly falcate, acute, serrated, glabrous, the margins obscurely ciliated, often tinged with red. *Stipules* oblong, obtuse, coloured. *Flowers* on dichotomously branched, pendent *panicles*, diœcious, rarely monœcious: all of a rich deep scarlet colour. *Pedicels* bracteated; *bracteas* lanceolate, acuminate, opposite. *Male flowers*: *Sepals* four, almost closed over the stamens; two ovate, large and boat-shaped, thick and fleshy, opposite and external; the other two smaller, oblong or approaching to obovate, slightly concave, of a thinner, almost membranaceous texture: *column of stamens* forming an ovate mass. *Female flowers*: *Sepals* five, rarely spreading, oval, nearly equal, concave. *Stigmas* six, erecto-patent, subulate, waved. *Ovary* of young fruit white, broadly obovate, triangular, the angles winged; two wings very short and one long, divergent; all red, and decurrent, so as to form a triangular pedicel.

Fig. 1. Male flower, with one (inner) sepal removed:—*magnified.* 2. Female flowers:—*natural size.* 3. Pistil (or young fruit):—*slightly magnified.*

Fitch, del. et Lith.

Reeve, imp

TAB. 4282.

NIPHÆA ALBO-LINEATA.

White-lined Niphæa.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calyx semisuperus, æqualis, 5-partitus. *Corolla* rotata, subæqualis; laciniis superioribus paulo minoribus et magis connatis. *Stamina* inclusa, libera, conniventia; 4 fertilia, subæqualia, antheris glabris ovatis; quintum sterile, carnosum, corollæ dorso suo adnatum, deforme. *Glandulæ perigynæ* 0. *Ovarium* 1-loculare, placentis didymis polyspermis. *Stigma* simplex.—Herba Ramondæ *cujusdam caulescentis facie; foliis rugosis in verticillum approximatis, floribus axillaribus terminalibusque aggregatis candidis. Lindl.*

NIPHÆA *albo-lineata*; hirsuta, foliis oppositis internodiis elongatis, segmentis calycinis rotundatis tuboque hispidis.

The genus *Niphæa* was recently established by Dr. Lindley, upon a Guatemala plant, and is derived from *νιφὰς, snow,* in allusion to the snowy white blossoms. The present species, evidently of the same genus, and preserving the same character in the pure white of its flowers, was discovered by Mr. Purdie, on moist banks, near Laguneta, Ocaña, in New Grenada. The curious scaly roots, resembling those of *Achimenes coccinea,* were sent to the Royal Gardens in 1845, and quickly came to perfection, being planted in pots with a mixture of loam, peat, and leaf-mould, and placed in the tropical propagating house. By a little management in the periods of planting these roots, by which the plant readily increases, it may be made to bloom at almost all seasons of the year; and although the flowers do not display any gaudy colours, like many of the *Gesneriaceæ,* yet the purple-tipped calyces contrast prettily with the snowy white of the corollas, and the leaves, with their rich purple green hue marked with white lines upon the costa and nerves, are always beautiful. Our figure was drawn in October.

DESCR. The *root* is fibrous, and in reality *annual,* but it produces those curious elongated scaly tubers, denominated "radix squamosa," each fleshy excrescence or scale of which is capable of forming a new plant. *Stem* erect, a span or more high, simple, rounded, hairy, herbaceous, green. *Leaves* opposite, on long foot-

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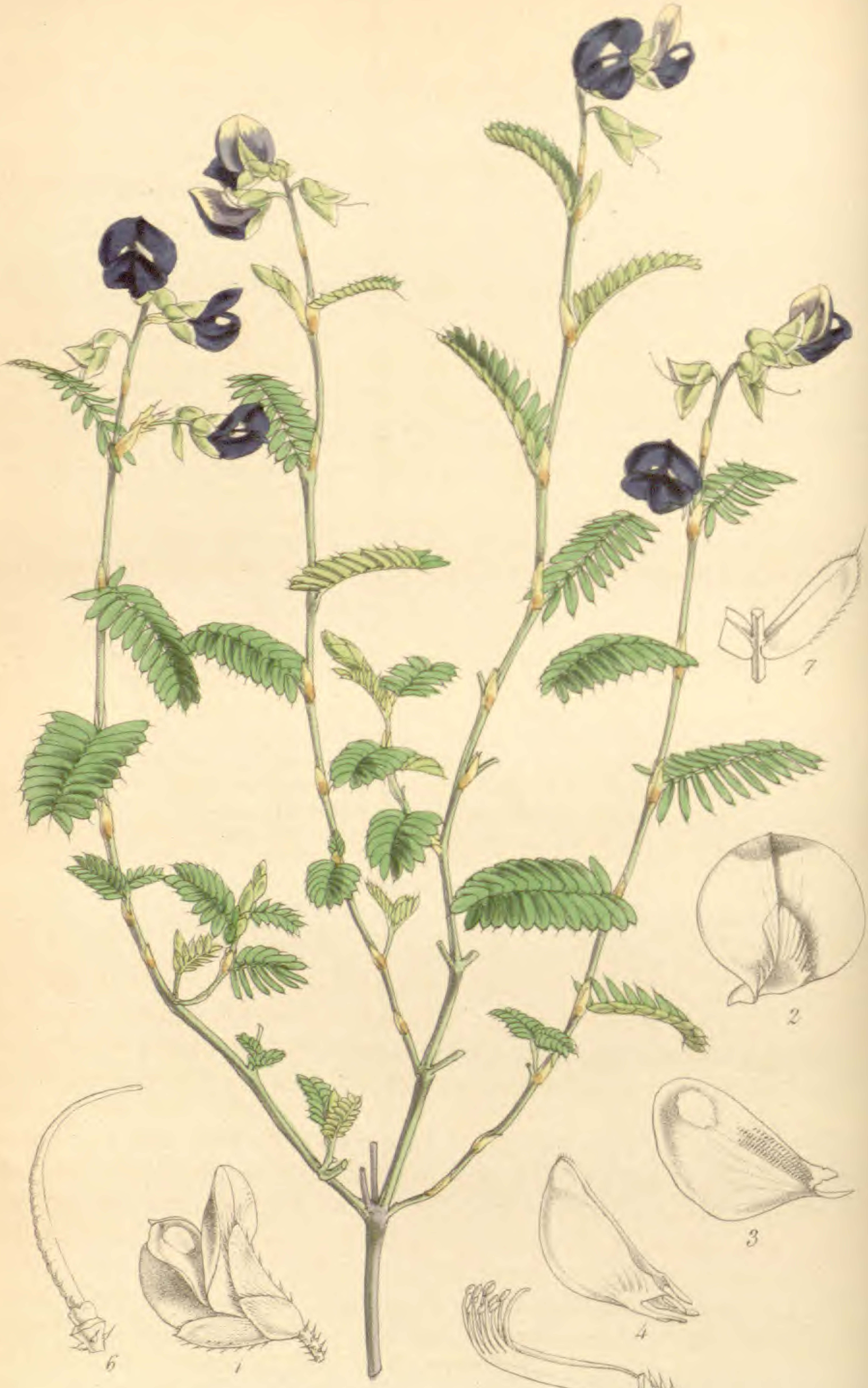
stalks, ovate, acute, crenato-serrate, often purple beneath, above rich velvety green, marked with white lines on the costa and pinnated nerves. *Internodes* elongated, except at the summit, where the leaves are more crowded. *Peduncles* crowded from the axils of the upper leaves, forming a sort of umbel, simple, single-flowered, hispid. *Calyx* hispid; the *tube* short, adnate with the *ovary*: the segments broad, rounded. *Corolla* rotate or nearly so; *tube* very short; *limb* of five concave, nearly regular, rounded, crenated lobes, white. *Stamens* short, four, with the rudiment of a fifth.

Fig. 1. Flower. 2. Calyx, laid open to show the ovary, style, and stigma. 3. Corolla, laid open to show the stamens. 4. Ovary, cut through transversely to display the placentæ and ovules :—*magnified*.



Fitch, del. et Lith.

Reeve, imp

TAB. 4283.

SMITHIA PURPUREA.

Purple-flowered Smithia.

Nat. Ord. LEGUMINOSÆ.—DIADELPHIA DECANDRIA.

Gen. Char. Calyx basi bracteolis duabus persistentibus, bilabiato-bipartitus, labiis æqualibus, integris v. obsolete partitis. *Corollæ* papilionaceæ *vexillum* subrotundum, patens, *alæ* oblongæ, transversim plicatæ, *carinæ* petala dorso apice leviter cohærentia. *Stamina* 10, in phalanges pentadelphas coalita; *antheræ* conformes. *Ovarium* sessile, quadri-sex-ovulatum. *Stylus* filiformis adscendens; *stigma* simplex. *Legumen* compressum plicato-4–6-(pluri-)articulatum, calyce inclusum, articulis orbicularibus, delabentibus, monospermis. *Semina* compresso-reniformia.—Herbæ *procumbentes, in Asia et Nova Hollandia tropica indigenæ*; foliis *abrupte pinnatis, paucijugis, foliolis ciliatis, adpresse setosis*; stipulis *semisagittatis*; racemis *axillaribus, paucifloris,* floribus *flavis (v. purpureis). Endl.*

SMITHIA *purpurea*; caule erecto ramoso glabro, foliolis oblongis longe apiculatis ciliatis subtusque ad costam submarginalem præcipue setuloso-strigosis, stipulis adnatis ovatis seta terminatis, racemis terminalibus lateralibusque, pedunculis setosis folium æquantibus, bracteis ovatis calycis labiisque integris striatis ciliatis, corolla purpurea (vexillo rotundato alisque macula alba notatis) alis vexilloque patulis basi superne unidentatis, ovario lineari pluri-ovulato basi cupulato.

Five species of *Smithia* are described, all natives of India, and all having yellow flowers. Our valued friend J. S. Law, Esq., has discovered in Bombay a sixth species, having purple flowers, the vexillum and alæ being moreover each marked with a conspicuous white spot. Seeds of this lovely little plant (and dried native specimens) were forwarded to us by Mr. Law, and the former soon germinated and blossomed in the stove of the Royal Gardens, in October, 1846. It differs in no respect from the generic character of *Smithia*, except that it has more seeds in each legume than had been attributed to the Genus.

DESCR. *Root* annual? *Stem* erect, filiform, branched, terete, glabrous. *Leaves* sessile, closely pinnated, with ten to twelve opposite, oblong, acute, ciliated *leaflets,* the apex terminated by a hair. *Stipules* subulate, brown. *Racemes* terminal, few- (two to five) flowered, bracteated. *Pedicels* hispid. *Bracteas* and *sepals* of the calyx ovate, striated, green, ciliated: the former con-

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duplicate, ciliated at the keel. *Corolla* deep and rich purple. *Standard* rotundate, pale at the back, the upper half white; the inside with a white spot and white streaks at the base. *Wings* with a clear spot towards the apex. *Carina* uniform purple. *Stamens* monadelphous, cleft above. *Ovary* linear, many-seeded, inserted into an hypogynous gland or cup. *Style* subulate. *Stigma* acute.

Fig. 1. Flower. 2. Standard. 3. Wing. 4. Keel. 5. Stamens and pistil. 6. Pistil:—*magnified.*

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Fitch del et lith

Reeve imp

TAB. 4284.

CHIRITA SINENSIS.

Chinese Chirita.

Nat. Ord. CYRTANDRACEÆ, *DC.* (GESNERIACEÆ CYRTANDRACEÆ, *Br.*)—
DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4182.)

CHIRITA *Sinensis*; acaulis, foliis elliptico-ovatis crenatis in petiolum crassum trigonum attenuatis, pedunculis erectis rufo-villosissimis pilis patentissimis, corymbis multifloris basi bracteis 2 membranaceis, corollæ lobis 2 sup. brevioribus tubo inferne subtus carinato, intus callis duobus linearibus, supra callo lato bilobo, ovario glanduloso-hirsuto.

CHIRITA Sinensis. *Lindl. Bot. Reg.* 1844, t. 59.

The introduction of this charming plant from China is due to the Horticultural Society. Mr. Fortune sent home flowering-plants in 1844. Mr. Backhouse (of the York Nursery), to whom we owe the possession of the specimens here figured, and who has been eminently successful in the cultivation and increase of it, speaks of it as follows :—

"The largest we had this season had a succession of upwards of twenty flower-stems, and some of the strongest of these had as many flowers opening in succession; the panicles being dichotomous and flowering in the axil of each fork. Some of the stems were nine inches high. The plant is easily propagated in moist sand in a warm, humid atmosphere; any portion of a leaf will emit leaves and roots. The young plants will however be probably a year in flowering, and the progress of the scape is at first very slow. The plants succeed best in a moist stove, near the glass, but require to be shaded when the sun is hot, otherwise their leaves are sometimes scorched. By having plants in different temperatures the flowering may be kept up for many months; but a common greenhouse scarcely brings them to perfection. We have not ripened seed, the capsules having been removed to keep up the flowering."

Its habit is that of some stemless *Gloxinia*, and it continues flowering for many months.

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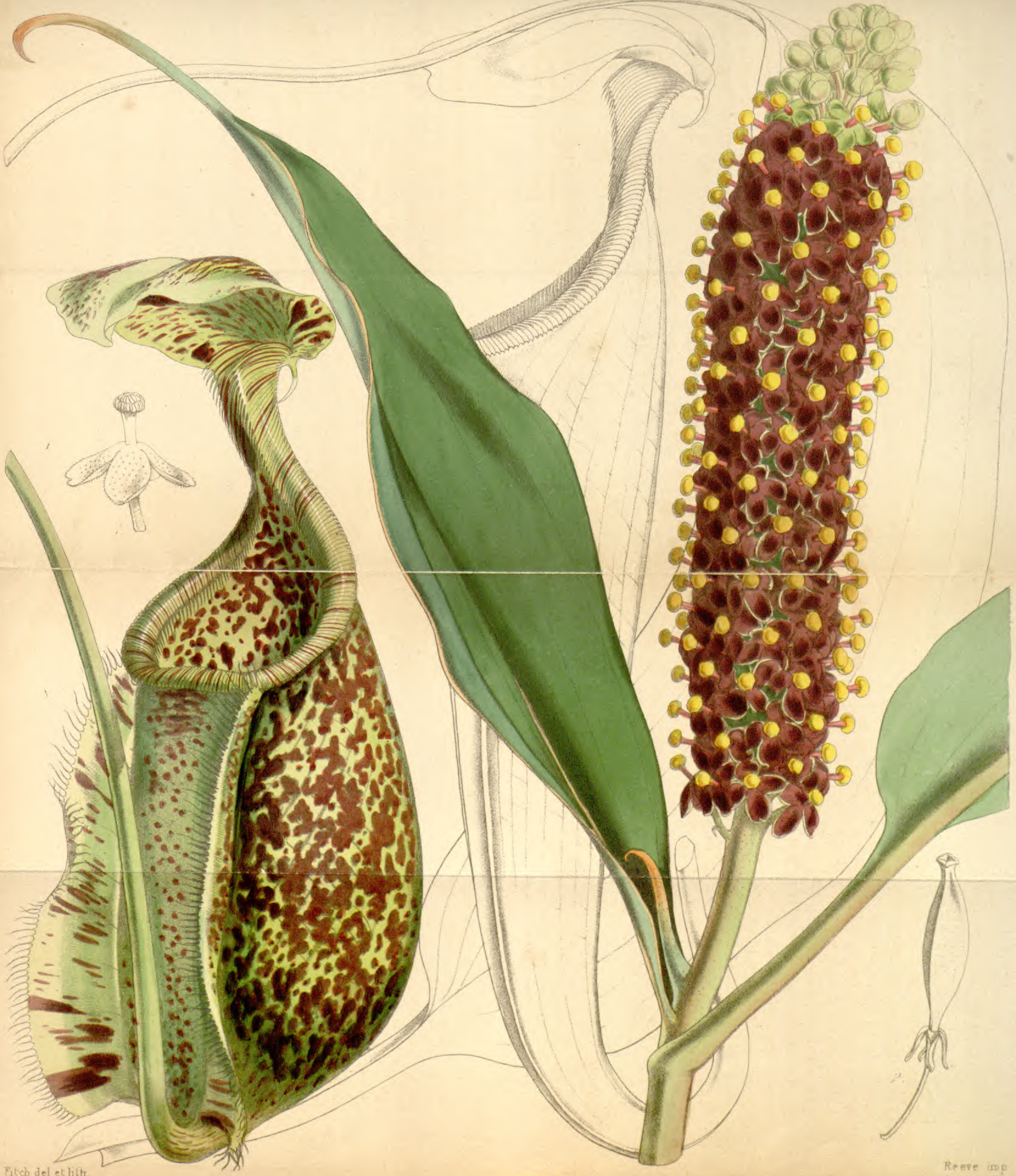
DESCR. *Stem* none. *Leaves* springing directly from the root. *Petioles* short, but very thick and triquetrous, expanding into an elliptical ovate blade, the outer ones the longest, all hairy, crenate, obtuse, wrinkled, pale, and with very prominent veins beneath. *Scape* a span and more high, at first curved downwards, then erect, stout, terete, clothed with copious, patent, red hairs and terminating in a subtrichotomous, compound *corymb*, having at the base two large deciduous membranaceous *bracteas*. *Peduncle* and *pedicels* with coarse spreading hairs. *Calyx* small, with five ovate segments. *Corolla* large, lilac-purple, yet varied with red and white; the *tube* inflated, but with a sudden compression towards the base beneath, forming a carina; *faux* open; *limb* two-lipped, upper *lip* of two, lower of three rounded lobes; within the corolla, on the lower side, are two linear, orange-coloured callosities; above at the faux, a broad two-lobed one of the same colour. *Stamens* two, fertile, with the *anthers* two-lobed, firmly united to each other; two sterile *filaments*, and one rudimentary *filament*. *Ovary* linear, glanduloso-pilose. *Style* short. *Stigma* one-lipped, bifid.

Fig. 1. Corolla, laid open. 2. Pistil. 3. Transverse section of ovary :—*magnified.*

4285



Fitch del et lith.

Reeve imp

TAB. 4285.

NEPENTHES RAFFLESIANA.

Sir Stamford Raffles' Pitcher-Plant.

Nat. Ord. NEPENTHACEÆ.—DIŒCIA MONADELPHIA.

Gen. Char. Flores dioici. MASC. *Perigonium* calycinum, profunde quadrifidum. *Stamina* in columnam centralem connata; *antheræ* 16, in capitulum subsphæricum congestæ, biloculares, longitudinaliter dehiscentes. FŒM. *Perigonium* maris. *Ovarium* liberum, subtetragonum, quadriloculare. *Ovula* plurima, septorum parietibus adscendentim affixa, anatropa. *Stigma* sessile, discoideum, obsolete quadrilobum. *Capsula* quadrilocularis, loculicido-quadrivalvis, valvis medio septiferis. *Semina* plurima, setaceo-fusiformia, adscendentia, imbricata: *testa* membranacea, utrinque relaxata; *nucleo* centrali inverso, subgloboso. *Embryo* in axi albuminis carnosi cylindricus, orthotropus; *radicula* brevi, infera.—Suffrutices *in Asia tropica et in Madagascaria indigeni; petiolis alternis, basi brevissime vaginantibus, foliaceo-dilatatis, apice cirrhosis, cirrho ascidiophoro, lamina articulata ascidium claudente*; *floribus racemosis vel paniculatis. Endl.*

NEPENTHES *Rafflesiana*; foliis petiolatis inferiorum ascidiis ventricoso-campanulatis antice late membranaceo-alatis alis longe ciliatis superiorum infundibuliformibus nudis, omnium ore pulcherrime pectinato-striato oblique postice assurgente.

NEPENTHES Rafflesiana. *Jack, in Hooker, Comp. to Bot. Mag. p.* 270. *Korthals, Bot. Ind. Batav. p.* 35.

To Dr. Jack is due the discovery of this remarkable species of *Nepenthes*, in the island of Singapore. It was our privilege, in the first volume of the 'Companion to the Botanical Magazine', to publish the letters of that distinguished botanist so early lost to science. He relates the circumstance of finding this pitcher-plant in one of his many valued communications, addressed to his family at Aberdeen. Writing from Singapore, June 20th, 1819, Dr. Jack says, "My last letter from hence was sent by way of Penang; this goes home *via* Bengal. It is impossible to conceive anything more beautiful than the approach to Singapore, through the Archipelago of islands that lie at the extremity of the Straits of Malacca. Seas of glass wind among innumerable islets, clothed in all the luxuriance of tropical vegetation, and basking in the full brilliancy of a tropical sky. The island of St. John's, which forms the western point of the bay of Singapore, would, if fortified, command with cannon the straits, through which every vessel passes to China and all the eastern settlements. A more convenient site and more formidable position could not possibly be selected; and it is really astonishing that it should have remained so long unnoticed. It was the capital of the Malays in the twelfth century; but they were obliged to abandon it, during the unfortunate wars with the Javan Empire of Majapulait, and retire to Malacca, and when the latter was taken by the Portuguese, they settled at Johore; and Singapore has, till now, been almost forgotten. I have no doubt it will soon rise to more than its ancient consequence. I have just arrived in time to explore the woods, before they yield to the axe, and have made many interesting discoveries, particularly of two new and splendid species of Pitcher-Plant (*Nepenthes Rafflesiana* and *N. ampullaria*), far surpassing any yet known in Europe. I have completed two perfect drawings of them, with ample descriptions. Sir S. Raffles is anxious that we should give publicity to our researches, in one way or other, and has planned bringing out something at Bencoolen. He proposes sending home these Pitcher-plants, that such splendid things may appear under all the advantages of elegant execution, by way of attracting attention to the subject of Sumatran botany." Many of Dr, Jack's plants did appear in the Malayan Miscellany, published at Bencoolen; but no plants of the *Nepenthes Rafflesiana* ever reached Europe alive; till the Royal Gardens was supplied with a case of them, through the kindness of Capt. Bethune, R.N., who, on his return from his scientific mission to Borneo, had a Wardian case filled with them; and so well were the plants established in the case, and so great was the care taken of them overland from India, that they were as healthy on their arrival at Kew in 1845 as the day they were transplanted from their native glen in Singapore. It was the very year in which Dr. Jack writes, that, as is well known, at the suggestion of his friend and patron, Sir Stamford Raffles, the island of Singapore was purchased by the India Company of the Sultan of Johore. Mr. Crawford was its first Governor and historian: since that period, it has become a settlement of vast importance to our country, and being much frequented by our ships, both mercantile and of the navy, it is to be hoped its vegetable productions will soon be familiar to us. Dr. Jack, with the modesty which was a striking feature in his character, gives the credit of the discovery of this plant in the forests of Singapore, to Sir Stamford Raffles; probably in order that the name might be considered more appropriate. Singapore, however, does not appear to be the only station for this plant; Korthals, if we read his high Dutch correctly, gives Bintang, off the coast of Sumatra, as another habitat.

Our plants, on their arrival, were soon removed into pots according to their sizes, and placed in a pan frequently filled with water, having moist moss covering the earth: with this treatment, a fine spike of male flowers was thrown up in the autumn of the same year. The spike is large and handsome, from the rich colour of the copious perianths and the numerous yellow heads. The pitchers, or ascidia, are not only remarkable in their shape, and from their different form in different parts of the plants, but for the richness of the colour and spots, and the elongated mouth with the curiously striated margin: the striæ terminate internally in teeth, and give a beautifully pectinated appearance to the inner edge.

We possess fine dried specimens from the East India Company, distributed by Dr. Wallich (and our capsule is drawn from one of these); and we have other specimens for which we are indebted to Mr. Veitch, also received from Singapore, and gathered by Mr. Lobb. Dr. Jack well observes "this is the largest and most magnificent species of the genus, being adorned with two kinds of urns, both elegant in their forms, and brilliant in their colouring." We cannot, indeed, we think, do better than copy the description drawn up from native living specimens, by Dr. Jack himself; for we can offer nothing more accurate.

DESCR. The *root* is fibrous. *Stem* ascending at the base, becoming erect and supporting itself on the neighbouring trees: the young parts covered with a deciduous tomentum or down. *Leaves* alternate, petiolate, the lower ones crowded and lanceolate, the upper more remote and oblong: the adult foliage is smooth; all the leaves are entire, having inconspicuous lateral *nerves*, and the mid-rib elongated into an urn-bearing cirrhus or tendril. The *cirrhi* of the lower leaves are not twisted, but hang straight from the apex; they terminate in larger ventricose and highly-coloured *ascidia* or *urns*, fringed along the interior angles with two membranaceous fimbriate wings, somewhat contracted at the mouth, which opens obliquely, rising much higher and slightly recurved behind, where the *operculum*, or *lid*, is inserted. The *tendrils* of the upper leaves are twisted into one or two spires at the middle, and terminate in long ascending funnel-shaped *urns*, flattened anteriorly, but not winged, and gracefully turned at the mouth like an antique vase or urn. Both have the inverted margin beautifully and delicately striated and variegated with parallel stripes of purple, crimson, and yellow. The *opercula*, or *lids*, are incumbent, membranaceous, ovate, marked with two principal longitudinal nerves, and cuspidate behind the hinge. The *racemes* of *flowers* are at first terminal; but the stem begins, after a time, to shoot beyond them and they become lateral, and are always opposite to a leaf, which differs from the others in being sessile, and its cirrhus never bearing an urn at its extremity. The *pedicels* are one-flowered. *Male Flowers*: *Calyx* deeply four-parted, tomentose on the outer surface, smooth, red, and punctate on the inner; segments oblong, obtuse, reflexed. *Corolla* none. The *staminous column* is central, thick, erect, red. *Anthers* numerous, yellow, contorted into a round terminal head. *Female flowers*: *Calyx* as in the male. *Ovary* superior, oblong, four-sided, erect. *Style* none. *Stigma* sessile, peltate, four-lobed. *Capsule* oblong, somewhat curved, four-angled, deeply furrowed at the sides, four-celled, four-valved; the valves septiferous in the middle, many-seeded. *Seeds* oblong, linear, membranaceous, and acute at both ends; arranged longitudinally, and affixed by the base to the partitions.—*Wm. Jack.*

Fig. 1. Male flower. 2. fruit:—*natural size.*

Fitch del et lith

Reeve imp

TAB. 4286.

SIPHOCAMPYLOS MICROSTOMA.

Small-mouthed Siphocampylos.

Nat. Ord. Lobeliaceæ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4178).

SIPHOCAMPYLOS (Eusiphocampylos) *microstoma*; suffruticosus erectus ramosus, ramis teretibus, foliis alternis brevi-petiolatis ovatis acutis glanduloso-serratis glabris, floribus umbellatis terminalibus foliosis, calycis tubo turbinato angulato brevi, laciniis longioribus linearibus obtusis patentibus, corollæ pubescentis tubo elongato clavato superne ventricoso lateraliter compresso angulato ore contracto, lobis subæqualibus parvis lineari-obtusis conniventibus pilosis, staminibus subinclusis, antheris 2 inf. barbatis.

Among many fine species of *Siphocampylos*, detected by Mr. Purdie in New Grenada, few, if any, can vie with this, in the size of the flowers and richness of their colour. It seems also to produce its blossoms early and freely, and they continue a long time in perfection; so much so, that though our plants were only raised from seed twelve months ago, they have been gay with flowers throughout the whole autumn and winter months, and have proved a great acquisition to our stoves, during this dreary season. In the summer, a greenhouse will be a better situation for it, and from the successions of buds that are forming, it seems to be one of those plants which one may reckon on having in bloom, at all times of the year. Some of our plants have the stems and branches deeply tinged with purple; and the corollas are occasionally of a deeper and sometimes a paler scarlet, always produced in a compact leafy terminal umbel.

DESCR. Perennial. *Stems* erect, rounded, branched, two to three feet high, glabrous. *Leaves* alternate, petiolate (petioles short), ovate, acute, glabrous (the younger ones slightly downy), serrated, each serrature tipped with, or rather constituted, by a pale gland. *Flowers* umbellate; that is, they seem each to spring from the axil of a leaf, which then becomes so reduced in size, they forming so compact a mass, that the foliage here may rather be called bracteas, and the pedicels, placed in an umbel, an umbellate-corymb; at first these flowers are erect, soon spreading. *Calyx-tube* short and broad, turbinate, angled; *limb* of five, spreading, linear-obtuse segments. *Corolla* rich scarlet, downy, two and a half inches long, monopetalous; the *tube* elongated, club-shaped, slightly curved and ventricose above, laterally compressed, and angular. The mouth of the tube is small and contracted: the segments small, nearly equally hairy, connivent only when old, the lower ones spreading. *Stamens* scarcely protruded, two lower ones bearded.

Fig. 1. Calyx and pistil. 2. Anthers:—*magnified.*

4287.

Fitch del et lith.

Reeve imp

TAB. 4287.

BRUNFELSIA NITIDA; β.? JAMAICENSIS.

Shining-leaved Brunfelsia; Jamaica var.?

Nat. Ord. SCROPHULARINEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calyx 5-dentatus v. 5-fidus. *Corolla* hypocraterimorpha, tubo apice vix dilatato, limbo ultra medium 5-fido, lobis latis rotundatis, æstivatione bilabiato sinubus subplicatis. *Stamina* fertilia 4; *antheræ* apice confluentes. *Stylus* apice incurvus dilatato-bilobus: lobis subæqualibus intus stigmatosis. *Capsula* coriacea aut carnosa, valvulis integris, vel rarius indehiscens? crassissima, subdrupacea; dissepimentum tenue sub placentis carnosis reconditum. *Semina* plurima, majuscula, pulpa vel placentis carnosis plus minus immersa. *Embryo* læviter incurvus.—Frutices *arboresve parvæ, Americæ australis v. Antillarum incolæ.* Folia *alterna, integerrima, exobovato-oblonga, sæpe nitida.* Cymæ *terminales, nunc densæ capituliformes, nunc laxiuscule pauciflora, vel ad florum unicum reductæ.* Bracteæ *parvæ.* Flores *speciosi, sæpissime suavolentes, pallide violacei, cærulei vel albidi, rarius ochroleuci aut albi. De Cand.*

BRUNFELSIA *nitida*; glabra, foliis obovato-oblongis acutis, floribus solitariis, calyce campanulato profunde 5-fido, corollæ tubo calyce 8–10-ies longiore, limbo planiusculo capsulæ valvulis coriaceo-carnosis. *Benth.*

BRUNFELSIA nitida. *Benth. in De Cand, Prodr. v.* 10. *p.* 200.

β.? Jamaicensis; floribus majoribus, fructu ignoto. *Benth. l. c.*

The genus *Brunfelsia* was so named by Plumier, in honour of Otto Bunfels or Brunfels, of Metz, who is described by Haller as one of the restorers of botany, on account of his work 'Herbarum vivæ Icones', published in three vols. folio, between the years 1530–36. Two species of the original genus were detected by the older botanists, *B. Americana,* and *B. undulata*; a third supposed species is described by Mr. Don, from Peru, *B. grandiflora*; and a fourth, by Mr. Bentham above quoted, *B. nitida,* from Havanah; to which he has referred var. *β. Jamaicensis,* from Mr. Purdie's specimens in our Herbarium. With these large yellow flowered species, Mr. Bentham has united the blue-flowered *Franciscea* (of Pohl) as not generically distinct: similar dry fruits being found in some of the yellow-flowered ones. The plant here figured, is the var. *Jamaicensis* of *B. nitida,* of Mr. Bentham, being what corresponds with the specimens sent by Mr. Purdie from Jamaica; but as I am in ignorance of the fruit, I cannot remove Mr. Bentham's doubts, respecting its identity with that species. It is a very handsome plant, flowering during the summer months copiously, in a cool stove, and easily increased by cuttings.

Descr. An erect *shrub*, four to five feet high, when fully grown, glabrous, with terete *stems* and *branches*. *Leaves* alternate, but crowded about the setting on of the younger branches, obovato-oblong or obovato-lanceolate, broadest above the middle, coming to a sharp point, tapering below into a short brown or purple *petiole*, quite entire, subcoriaceous, glossy. *Flowers* solitary from the axils of the upper leaves, on short *peduncles*. *Calyx* campanulate, glabrous, deeply five-lobed, the lobes reaching as far as the middle, ovato-obtuse. *Corolla* very large, yellow. *Tube* long, cylindrical, downy. *Limb* oblique, of five obovato-rotundate slightly waved spreading lobes. *Stamens* filiform; *style* included.

Fig. 1. Pistil:—*slightly magnified.*

4288

Fitch del et lith

Reeve imp

TAB. 4288.

TILLANDSIA BULBOSA; *var.* picta.

Bulbous Tillandsia; coloured *var.*

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii liberi sexpartiti *laciniæ* exteriores *calycinæ*, æquales basi cohærentes spiraliter convolutæ, duo altius inter se connatæ, tertia minor, interiores *petaloideas* inferne in tubulum convolutæ v. connatæ, superne patentes, basi intus nudæ v. rarius squamosæ. *Stamina* 6, hypogyna; *filamenta* linearia, alterna, sæpius perigonii laciniis interioribus adhærentia; *antheræ* incumbentes, basi sagittato-emarginatæ. *Ovarium* liberum, triloculare. *Ovula* in loculorum angulo centrali prope basin plura, biseriata, adscendentia, anatropa. *Stylus* filiformis; *stigma* trifidum, lobis abbreviatis v. filiformibus aut apice dilatatis, rectis v. contortis. *Capsula* cartilaginea, linearis v. ovata, trilocularis, loculicido-trivalvis, valvis endocarpio mox soluto duplicatis, explanatis v. tortis. *Semina* plurima e basi dissepimentorum erecta, lineari-clavata, stipitata, *stipite* pilis papposis cincto, *testa* dura, *chalaza* terminali mamillari. *Embryo* in basi *albuminis* farinosi rectus, extremitate radiculari infera.—Herbæ *in America tropica et extra-tropica calidiore indigenæ; utplurimum pseudo-parasiticæ, lepidotæ, caulibus foliosis simplicibus v. rarius ramosis, floribus spicatis v. paniculatis, rarius solitariis, bracteatis. Endl.*

TILLANDSIA *bulbosa*; foliis (subpaucis) e basi latissima circa bulbum vaginata longe subulatis rigidis coriaceis tereti-convolutis, superioribus basi angustioribus (in β. coloratis), spica ramosa bracteata bracteis ovatis distichis (sæpe coloratis), petalis acuminatis purpureis brevioribus, staminibus exsertis, filamentis infra apicem dilatatis.

TILLANDSIA bulbosa. *Hook. in Exot. Fl. t.* 173.

β. *picta*; major, foliis superioribus bracteisque coccineis. (TAB. NOSTR. 4288.)

Few persons, who have the opportunity of comparing this richly coloured plant with the figure above quoted, in the 'Exotic Flora,' would at first sight perhaps consider them to represent the same species; yet, except that this is a better grown specimen, with a more perfect spike, and that the upper leaves and bracteas are of a bright scarlet hue, tinged with yellow, I see no difference, and am bound to consider them the same. The original plant was transmitted from Trinidad, by the late Baron de Schack; our Garden is indebted for this splendid variety to the mission of Mr. Purdie, who sent healthy specimens from Jamaica, which on being simply suspended by a piece of wire, from the beam of a moist stove, flowered in the winter of 1846-7. In proof that the highly coloured leaves afford no permanent character, these became, after flowering, of the same uniform green as the rest of the foliage.

The *Tillandsias* exhibit strange forms, and many of them highly beautiful inflorescence; but they are very unintelligible, when studied in the Herbarium, and little sought after by those who send home living plants; so that our knowledge of the species is but imperfect. It is to be regretted, too, that they are difficult to keep long in a state of cultivation, generally dying soon after flowering, more frequently without blossoming at all.

DESCR. *Plants* clustered, two or more united at the base, and sometimes growing in two opposite directions, and in the instance here represented, slightly attached to the branches of trees by slender feathery fibres. *Stem* simple, leafy at the base, immediately swollen and bulbiform. *Leaves* a span or more long, subulate, coriaceous, rigid, waved and somewhat spirally twisted, terete from the singularly incurved or almost convolute sides, dark green, naked, the bases of the lower ones singularly dilated into very broad membranaceous sheathing bases to the bulb, pale-coloured with a red margin, dotted; the upper leaves gradually smaller and almost bracteiform, richly tinged with scarlet and yellow. *Spike* racemose, the branches compressed, and clothed with distichous, scarlet, imbricated *bracteas*, entirely concealing the flower-buds. *Flowers* protruded beyond the bracteas. *Calyx* of three green convolute *sepals*. *Corolla* of three linear-lanceolate, purple, acuminated *petals*, twice as long as the calyx. *Stamens* and *style* exserted. *Filaments* dilated below the apex. *Stigmas* three, cuneate, fringed at the edge.

Fig. 1. Flower. 2. Pistil:—*magnified*.

Fitch del et litho.

Reeve imp.

TAB. 4289.

PHARBITIS CATHARTICA.

Purging Pharbitis.

Nat. Ord. CONVOLVULACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx 5-sepalus. *Cor.* campanulata aut campanulato-infundibuliformis. *Stylus* 1. *Stigma* capitato-granulatum. *Ovarium* 3- rarius 4-loculare, loculis dispermis.—Herbæ *volubiles elongatæ speciosæ, perplurimæ ornamenti gratia in hortis cultæ ; pleræque Americanæ, retrorsum pilosæ. Chois. in DC.*

PHARBITIS *cathartica*; caule glabro contorto, foliis glabris cordatis aut sæpius cordato-trilobis, lobo intermedio ovato-acuminato basi sæpius dilatato, lateralibus brevioribus acutis, petiolo longo, pedunculis 1–2-floris petiolis superantibus, bracteis 6–8 lineas longis bilineari-lanceolatis apice (fructis) acuminato reflexis hirsutulis, corolla speciosa purpurea.

PHARBITIS cathartica. *Chois. in De Cand. Prodr. v.* 9. *p.* 342.

IPOMÆA cathartica. *Poir. Encycl. Suppl. v.* 4. *p.* 633.

CONVOLVULUS Portoricensis. *Spr. Syst. Veget. v.* 1. *p.* 595.

Var. floribus roseis.

CONVOLVULUS pudibundus. *Lindl. Bot. Reg.* t. 999.

IPOMÆA pudibunda. *Don, in Mill. Dict. v.* 4. *p.* 276.

A native of St. Domingo, Porto Rico, and Mexico, according to Choisy: we may further add Sta. Martha, in New Grenada; whence Mr. Purdie sent seeds in 1845, which flowered at Syon Gardens, in November of the same year, and made a very lovely appearance. The colour of the corolla is particularly vivid, varying from deep reddish-purple to rich violet-blue. The *Convolvulus pudibundus* of Dr. Lindley, above quoted, is doubtless the same species, with rose-coloured flowers. The 'Flore Médicale des Antilles' states that M. Bauduit, a rich proprietor of St. Domingo, discovered in this milky plant a resinous juice, which coagulates and proves to be profusely purgative. He formed of it a much approved syrup, which, in the French colonies, bears his name. This syrup is very active, and requires, on account of its drastic properties, to be used with great caution.

DESCR. *Stem* apparently annual, terete, glabrous, twining, slender, branched. *Leaves* alternate, remote, broadly cordate, sometimes entire, but more usually (altogether so in our specimen) three-lobed, glabrous; the lobes broad, rounded, suddenly acute, or rather acuminated, especially the middle lobe. *Petiole* as long as the leaf, slender. From the axil of the leaf or petiole, a solitary *peduncle* appears, about as long as, or longer than, the petiole, in our plant bearing one *flower*, with an articulation, and two small *bracts*, not unfrequently two or even three flowers: the upper joint or pedicel slightly incrassated upwards, about three quarters of an inch long. *Calyx* of five lanceolate, acuminated *sepals*, slightly hairy at the back, the apices more or less spreading. *Corolla* with the *tube* funnel-shaped, white below, rose-purple above; *limb* spreading, slightly five-lobed, the lobes rounded, with a small point in the sinus, the colour varying from reddish to deep blue-purple. *Stamens* five, unequal, included. *Filaments* hairy below. *Style* filiform, included. *Stigma* large, capitate, granulated. In fruit, the pedicel is bent at the joint or geniculated, and is much dilated below the persistent calyx.

Fig. 1. Portion of the corolla, with stamens. 2. Pistil:—*magnified.*

4290.

Fitch del. et lith.

Reeve imp.

TAB. 4290.

SCUTELLARIA CORDIFOLIA.

S. splendens

Heart-leaved Skull-cap.

Nat. Ord. LABIATÆ.—DIDYNAMIA GYMNOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4268.)

SCUTELLARIA *cordifolia*; caule erecto ramoso ramisque obtuse tetragonis racemisque (nunc ramosis) longissimis pubescenti-glanduloso-pilosis, foliis longe petiolatis membranaceis pallide luteo-viridibus mollibus rotundato-cordatis copiose rugoso-reticulatis acutis pubescenti-pilosis grosse sinuato-dentatis, floribus subverticillatis glanduloso-pubescentibus, bracteis angustis cito deciduis, calyce parvo, corolla (coccinea) gracili calyce multoties longiore, labio superiore 3-fido lobo intermedio breviore emarginato.

SCUTELLARIA cordifolia. *Benth. in De Cand. Prodr. ined.*

PERILOMIA cordifolia. *Schlecht. in Linnæa, v.* 6. *p.* 374.

SCUTELLARIA splendens. *Klotzsch, Ic. Pl. Rar. Berol. p.* 31. *t.* 13.

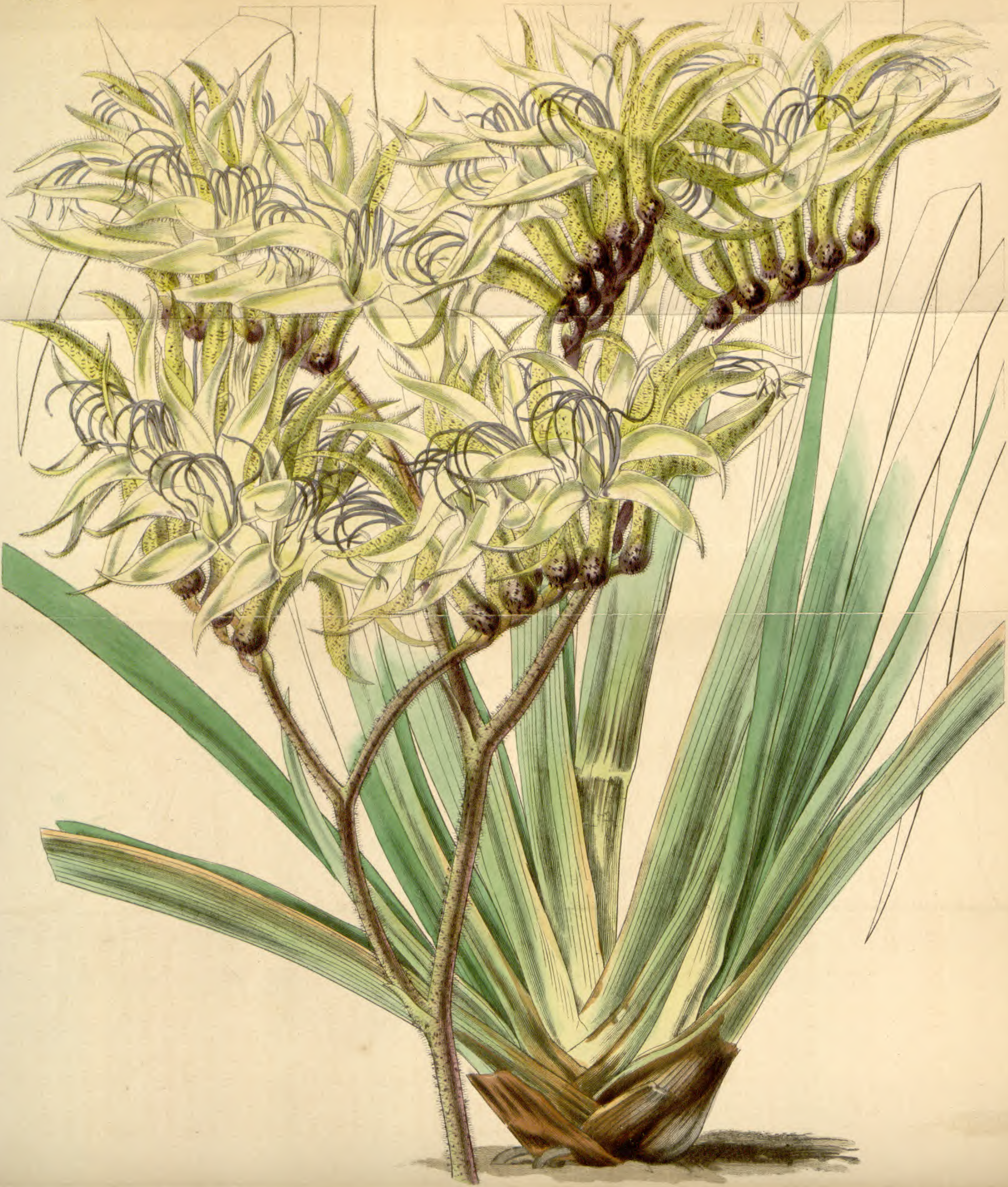
For this beautiful *Scutellaria*, the Royal Gardens of Kew are indebted to Messrs. Rollisson, of Tooting, who had received it from the Continent, under the name of *Scutellaria splendens*; and as such the species is described in the beautiful work of my friend Dr. Klotzsch, above quoted. It is, however, assuredly the *S. cordifolia*, Benth. (*Perilomia*, Schlecht.), and a native of Misantla and other parts of Mexico. The brilliant red colour, the size and general form of the flowers, indicate an affinity with *S. Ventenatii*; but the hue is more inclined to orange-red, the corolla is longer and more slender, the flowers are not secund or distichous, but subverticillate, and pointing in all directions; it has shorter stems, and very different foliage in colour, form, texture and reticulation. It flowers in the stove in September and October.

DESCR. *Stem* nearly erect, branched; with the branches divaricated, four-sided, pubescent with glandular hairs. *Leaves* opposite, large, downy, cordate, membranaceous, coarsely and almost sinuato-dentate, pale green, reticulated and wrinkled with the copious venations. *Petioles* an inch and a half long, pilose.

Racemes very long, terminal upon the branches, simple, or ramose, many-flowered. *Pedicels* short, subverticillate, with small deciduous *bracteas* at the base. *Calyx* as in the genus, glanduloso-pilose, tinged with purple, having the dorsal scale much enlarged in fruit. *Corolla* orange-scarlet, glanduloso-pilose, very long, many times longer than the calyx, the *tube* much curved, slender in the lower half, gradually widening upwards, so as to be funnel-shaped: the mouth inclining downwards: the *limb* of two lips, the lower lip ovate, acute, entire, deflexed, the upper much shorter, galeate, obtuse, three-lobed, middle lobe emarginate. *Stamens* and *style* included. *Ovaries* glandular, situated on a large conical gland or gynophore.

Fig. 1. Flower:—*magnified.*

4291



TAB. 4291.

ANIGOZANTHOS FULIGINOSA.

Sooty Anigozanthos.

Nat. Ord. HEMODORACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4180.)

ANIGOZANTHOS *fuliginosa*; caule angulato elato superne paniculato, inferne foliisque æquitantibus lineari-acuminatis subfalcatis striatis glaberrimis, spicis paniculatis secundifloris, pedunculis pedicellis parteque inferioris florum pilis plumosis fusco-brunneis fuliginosis, perianthii straminei tomentosi laciniis lanceolato-acuminatis tubum curvatum superantibus, staminum filamentis lacinias æquantibus, antheris apiculatis.

This is one of the few plants, figured in the 'Botanical Magazine', of which no living specimen yet exists in our Gardens. It is here given to show how much it merits cultivation; also because, from its peculiarly dry, or "everlasting" character, it exhibits so much of its beauty in the Herbarium, that we can vouch for the accuracy of the figure, both in form and colour. It is, too, among the rarest of the genus yet found in Australia, and is thus noticed, in conjunction with another species, *A. pulcherrima*, figured in this work, Tab. 4180, in a letter from Mr. J. Drummond, published in the 'London Journal of Botany', vol. iii. p. 263. "By a ship now about to sail, I send two fine species of *Anigozanthos*, collected by my son (since killed by the natives), in the vicinity of the Moore River. Of the golden-flowered kind (*A. pulcherrima*), I gave some account before (vol. i. of Lond. Journ. of Bot. p. 627, 8). The dark-flowering one, of which but two specimens have ever been found in bloom, is a real *mourning flower*; the upper portions of its stem, and lower portion of the corolla being covered, as it were, with black velvet: the corolla is deeply cleft, and expands about two inches. The species is not allied to any other yet discovered in the Swan River Settlement." The flower alone, independent of the curious sooty tomentum of the upper part of the plant, is indeed quite sufficient to distinguish this species; being much deeper cleft, with far larger and longer laciniæ, and longer filaments to the stamens than any known species. We do not despair of seeing this plant ere long in our greenhouses.

DESCR. *Root* a creeping *caudex*, thicker than the finger. *Leaves* chiefly radical, or from the very base of the stem, and fasciculate, sheathing, equitant, linear-ensiform, acuminate, striated, quite glabrous, shorter than the stem, much tinged with brown-purple. *Stem* erect, herbaceous, angled and furrowed, two to four feet high, bearing three or four *leaves*, similar to those of the stem, the uppermost less equitant. This stem branches above, and becomes a *panicle*, dichotomously divided, with a small leaf-like *bractea* at the forks, clothed with a dense dark-red brown or sooty, coloured tomentum, which, when seen under a microscope, is found to consist of beautiful plumose hairs. The ultimate branches, or peduncles of the *panicle*, bear a *spike* of large, tomentose, lemon-coloured *flowers*, the lower portion of the flower and the ovary being covered with the same fuliginose tomentum as the panicle, but which gradually becomes more scattered and inconspicuous towards the upper portion of the flower. *Ovary* globose. *Perianth* with the *tube* slightly curved, scarcely an inch long, a little dilated upwards; the *mouth* very oblique; the *limb* of six spreading lanceolate acuminate segments (clothed within, as well as without, with pale yellow tomentum), which are much longer, especially the upper ones, than the tube. *Filaments* subulate, as long as the segments of the perianth, their bases united into a membrane, or ring, at the mouth of the tube. *Anthers* small, oblong, pale-coloured, tipped with a small blunt mucro. *Style* longer than the corolla. *Stigma* clubbed.

4292

[illegible]

TAB. 4292.

MARTYNIA FRAGRANS.

Fragrant Martynia.

Nat. Ord. SESAMEÆ, *DC.* Tribe II. PEDALINEÆ, *Br.*—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calyx subæqualiter 5-fidus, basi 2–3-bracteolatus. *Corolla* irregularis campanulata, basi gibba, limbo 5-lobo inæquali. *Stamina* 5, uno rudimentario sterili, 4 didynamis nunc omnibus nunc 2 tantum antheriferis. *Stigma* bilamellatum. *Corolla* coriacea lignosa, ovata aut longior apice rostrata, rostro inflexo bicorni, anterius sulcato-dentata, intus 4–5 ?-locularis (1) sed vix apice dehiscens, septis coriaceis. *Semina* pauca, crassa, secus septum in loculis uniserialia, pendula, subbaccata, demum tuberculato-rugosa.—Herbæ *ex America calidiore ortæ, sæpius ramosæ, piloso-viscosæ.* Folia *opposita aut suprema subalterna, petiolata, cordata, subrotunda. DC.*

MARTYNIA *fragrans*; foliis (plerisque) oppositis petiolatis cordatis v. oblongo-cordatis trilobis angulato-sinuatis, racemo terminali, calycibus inflato-campanulatis obliquis plicatis, bracteolis ad basin calycis 2 plano-convexis, floribus tetrandris, fructibus superne aristatis rostris capsula subduplo longioribus apice uncinatis.

MARTYNIA fragrans. *Lindl. Bot. Reg.* 1840. *Misc. n.* 206. 1841, *tab.* 6.

The curious capsules of this very beautiful and highly fragrant annual, containing ripe seeds, were received at the Royal Gardens of Kew, in the spring of 1846, from Mr. Röpper, at the Real del Monte mines, in Mexico. Treated as half-hardy plants, they flourished during the summer months, in a cool greenhouse, and were universally admired, no less for their large and highly coloured flowers, than for their delicious odour. There can scarcely be a doubt but this species will bear our summers in the open air; a bed entirely filled with it would have a rich effect, and would contribute greatly to ornament the flower garden.

DESCR. *Plant* one to three feet high, everywhere clothed with soft glandular down. *Stem* terete, erect, flexuose. *Leaves* opposite, or usually so, petiolate, cordate, sometimes approaching to oblong-cordate, three-lobed, lobes rounded, angulato-sinuate, the middle one the longest. *Raceme* terminal, of from three to six *flowers,* which are large, handsome and fragrant. *Pedicels* as long as the flowers. *Calyx* large, subcampanulate, inflated; the mouth oblique, plaited and striated; the teeth short, furnished at the base with two appressed fleshy *bracts*. *Corolla* with the *tube* scarcely longer than the calyx, the *mouth* oblique, the *limb* of four spreading lobes, of which the upper and lower are the largest, the former bifid, all of them rounded. The general colour of the corolla is a rich purplish-red, the throat yellow, with dark dots. *Stamens* and *style* included. *Fruit* an oblong dark-brown *capsule*, curved upwards, wrinkled, crested above, terminating in two incurved beaks, much longer than the capsule, and hooked at the end.

Fig. 1. Capsule:—*natural size.*

4293

Fitch del. et lith.

TAB. 4293.

ÆCHMEA DISCOLOR.

Two-coloured, or Crab's eye Æchmea.

Nat. Ord. BROMELIACIÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Bracteæ sub singulo flore cyathiformes. *Perigonii* superi sexpartiti *laciniæ* exteriores *calycinæ,* æquales, spiraliter convolutæ, aristatæ v. muticæ, apice hinc oblique dilatatæ, interiores *petaloideæ,* exterioribus multo longiores, inferne convolutæ, basi intus squamosæ v. rarius nudæ. *Stamina* 6, imo perigonio inserta: *filamenta* filiformia, tria laciniarum interiorum basi adnata; *antheræ* ovatæ, dorso affixæ, subincumbentes. *Ovarium* inferum triloculare. *Ovula* plurima, e loculorum angulo centrali pendula, anatropa. *Stylus* filiformis: *stigmata* 3, linearia v. petaloidea, spiraliter convoluta. *Bacca* ovato-subglobosa, trilocularis. *Semina* plura ex apice loculorum pendula, *testa* coriacea fusca, *umbilico filo* brevi gracili appendiculato. *Embryo* minimus, rectus, in basi *albuminis* dense farinacei, extremitate *radiculari* umbilicum attingente, supera.—Herbæ *Americanæ tropicæ, sæpe in arborum truncis pseudo-parasiticæ*; foliis *radicalibus ligulatis v. ensiformibus, crassis, coriaceis, integerrimis v. spinuloso-serrulatis*; scapo *ramoso paniculato,* rachi *flexuosa, bracteis sub singulo flore cyathiformibus spinoso-aristatis integerrimis v. tricrenatis,* floribus *terminalibus abortivis. Endl.*

ÆCHMEA *discolor*; foliis ligulatis striatis obscure fasciatis serrulato-dentatis subtus discoloribus, bracteis lanceolatis membranaceis, floribus in paniculam sessilibus bracteatis, bracteis lanceolatis caducis, calycibus ovario adhærentibus conico-ovatis coccineis dentibus obtusis atris, corolla calyce breviore.

ÆCHMEA discolor. *Hort.*

A singularly attractive plant, from the rich coral-red of the panicle, the flowers being of the same bright vermilion colour, and the calyx tipped with black; also from the great length of time the plant continues in blossom, through the whole of the winter months. The unexpanded buds have a most striking resemblance to the well-known beads, commonly called "Crab's eyes", which are the seeds of *Abrus precatoria,* only that they are much larger. The species is probably a native of Brazil; but I know nothing respecting its history, further than that it was received at the Royal Gardens of Kew, under the name here retained, from Messrs. Henderson, and from the Paris garden.

DESCR. *Leaves* radical, erecto-patent, ligulato-obtuse, grooved above, and there green and transversely banded with furfuraceous lines; the underside purple, the margin dentato-serrate. *Scape* twice as long as the leaves, terete above, branched into a *panicle*, of a rich scarlet colour, bearing a few membranaceous lanceolate pale brownish *bracts*. *Flowers* sessile, furnished with large oblong, membranaceous, deciduous bracts. *Calyx*, including the adherent *ovary*, conical-ovate, bright red, the connivent teeth obtuse, black. *Petals* twisted, closed, at first red, afterwards purple, boat-shaped, with two scales within at the base. *Stamens* included; and the *style* also. *Stigma* capitate.

Fig. 1. Vertical section of the calyx and ovary. 2. Petal, scales, and stamen. 3. Flower. 4. Transverse section of germen:—*magnified*.

4294

Fitch del et lith.

Reeve imp

TAB. 4294.

COLUMNEA AUREO-NITENS.

Golden Columnea.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA GYMNOSPERMIA.

Gen. Char. *Calyx* liber, 5-partitus. *Corolla* tubulosa, rectiuscula, basi postice gibba, ringens, lobis superiore erecto fornicato, inferiore trifido patente. *Stamina* 4 didynama, *antheris* connexis, quinti postici rudimentum. *Glandulæ* 1–5 circa basin ovarii. *Bacca* 1-locularis, placentis 2 parietalibus bilobis. *Semina* oblonga.—Frutices *Americani flexiles, erecti aut scandentes.* Folia *opposita brevi-petiolata crassiuscula subserrata, hirsuta vel pubescentia.* Pedunculi *axillares solitarii aut conferti.* Corollæ *coccineæ. DC.*

COLUMNEA *aureo-nitens*; fruticosa erecta subsimplici tota aureo-sericea, foliis oppositis subsessilibus distichis, altero obovato oblongo acuminato denticulato serrato basi valde inæquilatera hinc decurrente, altero multoties minore ovato-acuminato inæquilatero sessili, floribus sessilibus aggregatis (2–3) bracteatis deorsum versis, bracteis sepalisque appressis lanceolatis longe acuminatis laciniatis, corolla tubulosa calyce duplo longiore compresso-subangulata, paululum ventricosa basi inflata curvataque, limbi parum decurvi laciniis 5 æqualibus erecto-incurvis.

From the Royal Gardens of Kew, where it flourishes in a moist stove, producing its blossoms sometimes in autumn, sometimes in early spring. These flowers and nearly the whole plant, but especially the younger portions, are densely covered with a rich gold-coloured clothing of silky hairs. We owe the possession of it to Messrs. Hendersons, Pine-Apple Place, Edgeware Road. Native specimens are in our Herbarium from Columbia.

DESCR. Our tallest plant is a foot and a half high, suffruticose, but succulent, erect, or nearly so, scarcely branched, everywhere of a golden hue from the copious golden-coloured silky shaggy hairs, most abundant in the young parts. *Leaves* opposite, but of two kinds; one of each pair is from four to six inches or more long, on a short footstalk, ovato-oblong, acuminate, serrated, deeply penninerved, the veins very prominent beneath, the base very unequal, one side terminating very abruptly, the other decurrent to the base of the petiole; the other opposite leaf is very small, scarcely an inch long, sessile, ovate, acuminate, and also unequal at the base. *Flowers* axillary, fascicled, directed towards the back of the plant, on short petioles, bracteated. *Bracteas* lanceolato-laciniated. *Calyx* of five lanceolate, appressed *sepals*, equally with the bracteas laciniated. *Corolla* tubular, about an inch and a half long, slightly curved, yellow, but aureo-nitent from the golden hairs; slightly curved, the base above gibbose, a little ventricose near the middle, the mouth oblique; *limb* of five obtuse, erect, nearly equal, segments. *Stamens* four, didynamous, included. *Filaments* united into a tube, split on one side. *Anthers* subglobose, connate. *Ovary* ovate, hairy, with five *glands*, of which two at the back are large, and bifid, the three others small, clavate. *Style* shorter than the tube. *Stigma* two-lipped.

Fig. 1. Flower, with the calyx expanded:—slightly *magnified.* 2. Stamens. 3. Pistil and hypogynal glands. 4. Ovary and three of the glands cut through transversely:—*magnified.*

4295

TAB. 4295.

ANGRÆCUM FUNALE.

Cord-like Angræcum.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. Perianthium patens. *Sepala* et petala subæqualia, libera. *Labellum* sessile, cum basi columnæ continuum, carnosum, indivisum, petalis multo latius; calcare recto cornuto, sæpius subcylindraceo, perianthio multo longiore, raro obconico. *Columna* nana subteres, raro elongata, semiteres. *Anthera* 2-locularis, truncata. *Pollinia* 2, bipartibilia, *caudicula* brevi angusta, *glandula* triangulari.—Epiphytæ *caulescentes.* Folia *coriacea ligulata, apice obliqua.* Flores *solitarii v. racemosi, albi nunc citrini v. herbacei. Lindl.*

ANGRÆCUM *funale*; subacaule aphyllum, radicibus copiosis elongatis crassis cylindraceis hic illic articulatis, pedunculis subbifloris, sepalis petalisque oblongo-lanceolatis reflexis, labello trilobo, lobis lateralibus parvis erectis, intermedio maximo lato obcordato-bifido, calcare filiformi perianthio bis longiore.

ANGRÆCUM funale. *Lindl. in Gard. Chron.*

ŒCEOCLADES funalis. *Lindl. Gen. et Sp. Orchid. p.* 237.

EPIDENDRUM funale. *Sw. Prodr. p.* 126.

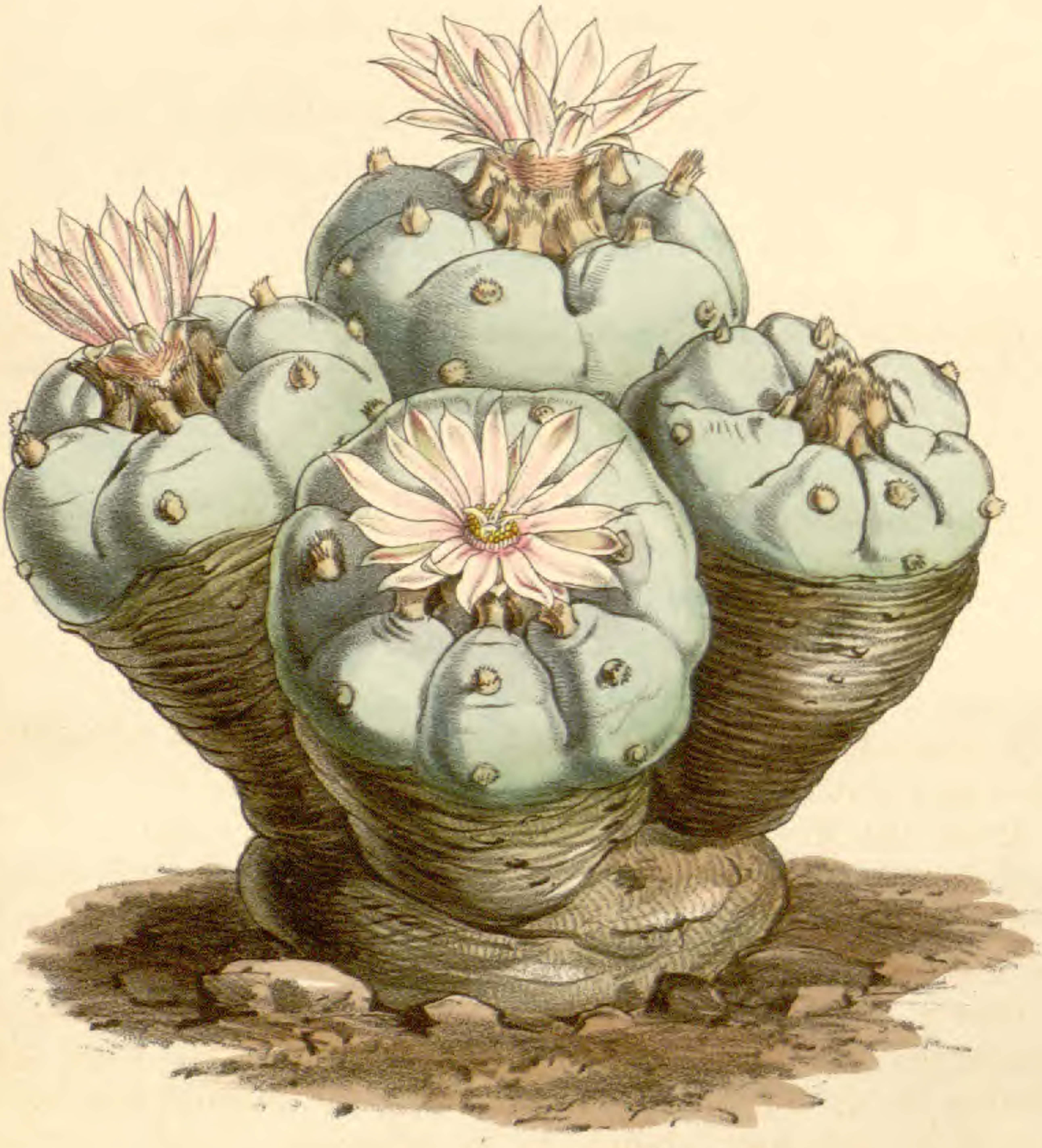
LIMODORUM funale. *Sw. Fl. Ind. Occ. v.* 3. p. 1521. *Willd. Sp. Pl. v.* 4. *p.* 127.

One of the rarest and least known of the West Indian Orchideous plants, which though referred by Lindley in the 'Genera et Species Orchid.', to *Œceoclades,* that excellent botanist has since acknowledged it (in a recent number of the 'Gardeners' Chronicle') to be a true species of *Angræcum.* We adopt accordingly the latter name, and find that the characters quite agree with those which may be considered to belong to the type of the genus, *A. eburneum.* Our plant, together with *A. filiforme,* Lindl. (of Hispaniola), are the only species yet detected in the New World, and both are aphyllous, the rest being all natives of tropical Eastern Africa and adjacent isles (Madagascar, Bourbon and Mauritius). *A. funale* grows on the trunks of trees, in the mountains of Jamaica, and was first detected by Swartz, and well described by him: recently it has been sent to the Royal Gardens of Kew by our collector, Mr. Purdie. Attached to a block of wood, and freely supplied with moisture, it produced its highly fragrant blossoms in the winter of 1846, and continued some time in blossom.

Descr. The plant may be said to consist of a very short *caudex*, throwing out, in all directions, copious, long, flexuose, cylindrical, partially articulated, greenish, fleshy *roots*, about as thick as a goose-quill. The same *caudex* gives rise to one or more slender *peduncles*, simple and one-flowered, or divided and two-flowered, bearing two or three small brown appressed *bracteas*. *Flower* large, highly fragrant. *Sepals* and *petals* pale green, oblong-lanceolate, reflexed. *Lip* very large, white, three-lobed, the two side lobes turned up so as to be applied to the *column*, intermediate one very large, obcordate, two-lobed; *spur* very long, slender, filiform. *Column* short.

Fig. 1. Lip, with the spur. 2. Column. 3, 4. Pollen-masses:—*magnified.*

4296



Fitch del.et lith

Reeve imp.

TAB. 4296.

ECHINOCACTUS WILLIAMSII.

Mr. Williams' Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4190.)

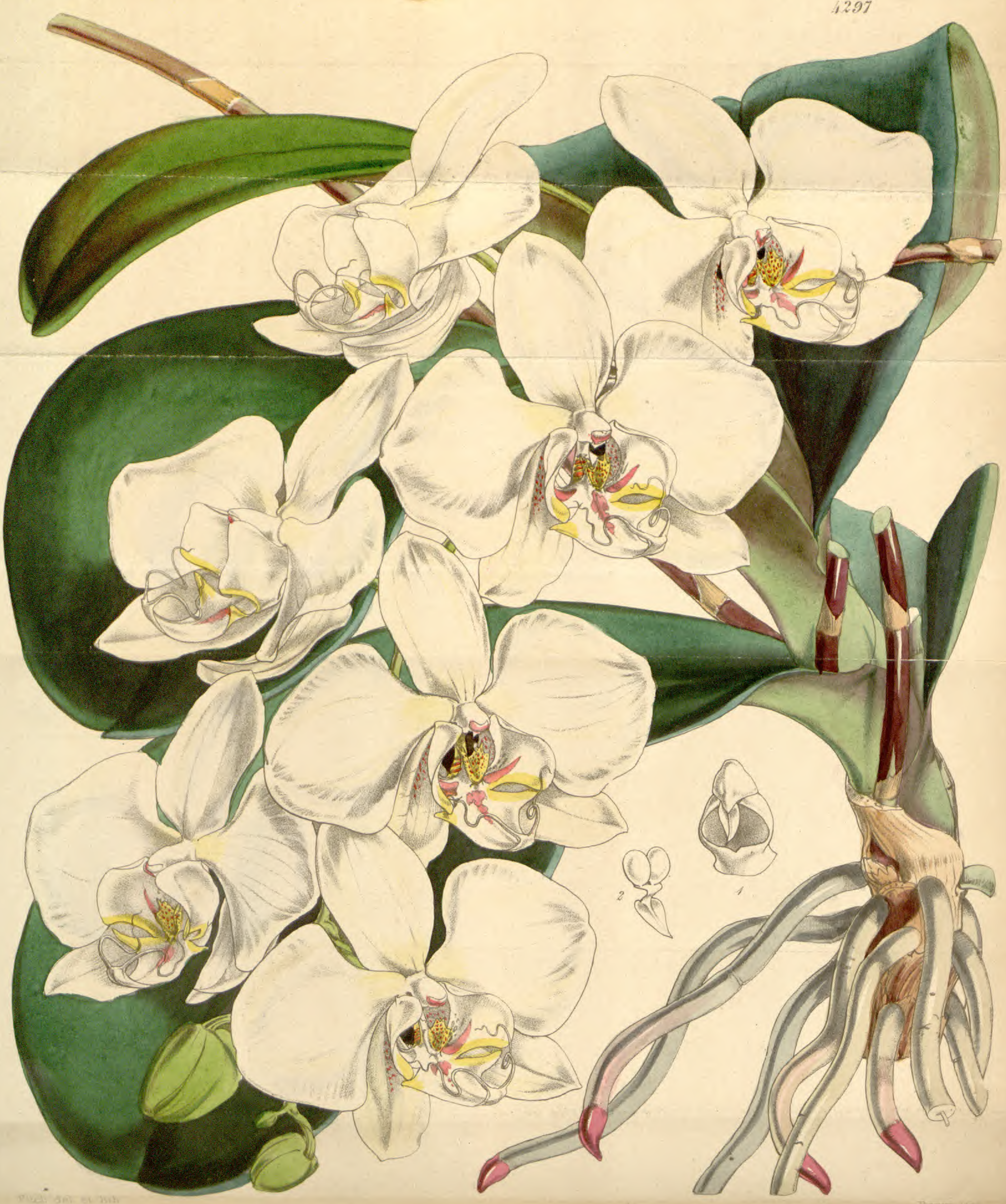
ECHINOCACTUS *Williamsii*; humilis cæspitosus turbinatus inferne teres transversim cicatricatus cinereo-fuscus superne umbilicato-depressus glaucus 6–8-costatus, costis latis convexis parce tuberculatis inermibus pulvilligeris, pulvillis e pilis fasciculatis densis erectis formatis, floribus parvulis subsolitariis albo-roseis.

ECHINOCACTUS Williamsii. "*Lemaire, ex Salm-Dyck in Otto et Dietr. Allgem. Gartenzeit,* xiii. *p.* 385." *Walp. Repert. v.* 5. *p.* 816.

A neatly-formed species, which has a very pretty appearance when its starry blossoms are expanded. We received several plants of it at the Royal Gardens of Kew, through the favour of the Real del Monte Company, from the rocky hills of their district of mines in Mexico, with many other treasures. It flowers in the summer months.

DESCR. Our largest plants do not much exceed the size represented. They grow in a tufted manner and are often proliferous, as in the instance here shown: the parent plant being, as it were, stifled or subdued by its offspring. Each individual is turbinate: from the base to the crown, or summit, terete, of an ashy brown colour, and scarred with close transverse lines, occasioned, it would appear, by the progressive withering and contraction of the tubercles: the summit is broadly convex, but with a deep depression in the centre, glaucous, traversed from the centre outwards by 6–8 furrows, and thus divided into as many convex ridges, and these again, transversely, but more or less deeply, into rather large, rounded, more or less confluent unarmed *tubercles*, each of which has a dense tuft or short pencil of compact erect hairs:—no aculei. *Flowers* proceed from a young tubercle, near the centre of the crown. The base of the *calyx* is downy. The *petals* lanceolate, rather numerous, white, externally tipped with pale green, and having a rose-coloured line down the centre. *Stamens* yellow. *Stigma* of four spreading rays.

4297



Fitch del et lith

Reeve imp.

TAB. 4297.

PHALÆNOPSIS AMABILIS.

Indian Butterfly-Plant.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. Perianthium explanatum, patens, sepalis liberis, petalis majoribus dilatatis. *Labellum* cum basi paulo producta columnæ connatum, liberum, basi callosum, trilobum; lobis lateralibus ascendentibus petaloideis, intermedio angustiore bicirrhoso. *Columna* in ovarium recumbens, semiteres; rostello gladiato. *Anthera* bilocularis. *Pollinia* 2, subglobosa, *caudicula* plana spathulata, *glandula* maxima cordata.—Herba *epiphyta.* Caules *radicantes, simplices.* Folia *rigida, lato-lanceolata, apice oblique retusa.* Flores *paniculati. Lindl.*

PHALÆNOPSIS *amabilis.*

PHALÆNOPSIS amabilis. *Blume, Bijdr. p.* 294. *Rumphia, t.* 194. *Lindl. Bot. Reg.* 1838. *t.* 34. *Gen. et Sp. Orchid. p.* 213.

EPIDENDRUM amabile. *Linn. Sp. Pl. p.* 1351. *Swartz, Orchid. p.* 184.

ANGRÆCUM album majus. *Rumph. Herb. Amb. v.* 6. *p.* 99. *t.* 43.

This noble Orchidaceous plant, though introduced to our Stoves ten years ago, by Mr. Cuming from Manilla, is still perhaps the choicest and most highly prized of the family. Indeed, there is not a more chaste or lovely flower among all the *Orchideæ*; and it has the merit of continuing a long time in blossom, one single plant at the Royal Gardens of Kew having been in bloom through the whole of the present winter (1846–7). There is, indeed, a danger of its flowering too freely, and so exhausting itself; and we have on that account been obliged to nip off some of the flowering branches; especially as we do not find the species to increase readily. The species was first detected at Amboyna, by Rumphius. In Java, and probably in the Malayan Islands generally, it seems abundant. It grows freely, attached to a piece of wood, together with a little moss, suspended from a rafter of the stove. The graceful racemes and branches, having a pendent character, frequently display their blossoms in front of the dark green foliage, which sets them off to great advantage. The generic name, *Phalænopsis,* was given to the plant from a fancied resemblance to a moth or butterfly: *φάλαινα,* a *moth,* and *ὄψις, resemblance.*

MAY 1ST, 1847.

DESCR. An *Epiphyte*, attaching itself to the trunks of trees in the Indian forests, by stout fleshy whitish fibres. *Pseudo-bulbs* none. *Leaves* large, dark green, distichous, very thick and coriaceous, elliptical-lanceolate, obliquely retuse. *Peduncle* long, drooping. *Flowers* racemose, distichous, large, the ground of the purest white imaginable, becoming tinged with cream, or a yellowish hue in age: the *lip* only streaked and spotted with red and yellow. *Perianth* spreading almost exactly horizontally. *Sepals* uniform, elliptical-ovate: the *petals* large, subrhomboid, and in the broadest part nearly as broad as long. *Labellum* connate with the produced base of the column, smaller than the petals, free, three-lobed, with a callosity at the base: the side-lobes ascending, broad, petaloid, the intermediate one trowel-shaped, bearing two curious incurved twisted cirrhi. *Column* semi-terete. *Anther* two-celled. *Pollen-masses* two, subglobose.

4298

Fitch del et lith

Reeve imp

TAB. 4298.

RUELLIA PURDIEANA.

Mr. Purdie's Ruellia.

Nat. Ord. ACANTHACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calyx 5-partitus, laciniis æqualibus v. subæqualibus. *Corolla* hypogyna, infundibuliformis, limbi quinquefidi æqualis laciniis patentibus obtusis. *Stamina* 4, corollæ tubo inserta, didynama, inclusa; *antheræ* oblongæ, biloculares, loculis parallelis, æqualibus, muticis v. basi mucronulatis. *Ovarium* biloculare, loculis 3–4-ovulatis. *Stylus* simplex; *stigma* subulatum, dorso canaliculatum, basi denticulo auctum. *Capsula* oblongo- sub 4-angularis, 2-locularis, 6–8-sperma, loculicide 2–valvis, valvis medio septiferis. *Semina* retinaculis suffulta.—Herbæ tropicæ *et* subtropicæ, *caulescentes, pilosæ*; foliis *oppositis*; spicis *axillaribus v. terminalibus, foliaceo-bracteatis, bracteolis parvis v. nullis*; floribus *mediocribus. Endl.*

RUELLIA *Purdieana*; fruticosa glabriuscula, ramis subteretibus, foliis ovato-acuminatis subundulatis sublonge petiolatis integerrimis, floribus binis terminalibus bracteis 2 flores subæquantibus foliiformibus suffultis, calyce profunde 5-fido laciniis subulatis, corollæ tubo valde elongato curvato 5-angulato infundibuliformi, limbo 5-lobo patente, lobis rotundatis undulatis subæqualibus, antheris ultra tubum exsertis.

A desirable Acanthaceous plant for cultivation in the stove. It strikes freely from cuttings, blossoming at an early period and at different seasons of the year, and the flowers are a full deep crimson-lilac. When the *Acanthaceæ* of De Candolle's 'Prodromus' shall have been published by Professor Nees von Esenbeck, we shall know something of the characters for distinguishing the genera of this extensive and difficult family. I place the present species, with some confidence, in *Ruellia*, because of its great similarity in habit and flowers to the *Ruellia bracteata* of Mr. Brown, from New Holland, as figured by Endlicher in his valuable 'Iconographia'. From that, however, our present species is readily recognized by the different form of the corolla, and by its glabrous stem and leaves.

DESCR. A *fruticose,* or rather perhaps *suffruticose, plant,* erect, 1–1½ foot high, glabrous, branches obtusely tetragonal, nearly cylindrical, green. *Leaves* opposite, petiolate, ovato-acuminate, penninerved, entire; transverse nervelets connect the principal nerves. *Flowers* terminal, apparently in pairs, and each remarkable for a very large pair of *bracteas,* resembling the leaves at the base, much smaller than the stem-leaves, indeed, but nearly as long as the flower. *Calyx* small, deeply cut into five subulate erect segments. *Corolla* of a fine deep crimson-lilac colour, with the *tube* much elongated, curved, gradually enlarging upwards: *limb* of five nearly equal spreading waved segments. *Stamens* four, didynamous. *Anthers* sagittate, white, protruding a little beyond the tube. *Ovary* oblong, seated on a fleshy base, two-celled. *Style* as long as the tube. *Stigma* cleft: the subulate segments unequal.

Fig. 1. Calyx and Pistil. 2. Anther. 3. Ovary. 4. The same cut through transversely:—*magnified.*

4299

Fitch del.et lith.

Reeve imp.

TAB. 4299.

MARSDENIA MACULATA.

Spotted-leaved Marsdenia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx 5-partitus. *Corolla* subcampanulata, v. rotata, v. rarissime urceolata, 5-fida, laciniis patulis v. rarius reflexis contortis, tubo introrsum glabro, v. superne pilis inflexis instructo. *Corona staminea* 5-phylla, foliolis gynostegio insertis, simplicibus, ovatis v. inferne rotundatis et in acumen v. in ligulam linearem attenuatis. *Antheræ* membrana terminatæ. *Massæ pollinis* ovoideæ, processu subdilatato affixæ, erectæ. *Stigma* umbonatum muticum v. rostratum obscure bifidum. *Folliculi* læves. *Semina* comosa.—Suffrutices *in* India orientali, Moluccis, Nova Hollandia, *rarius in* America tropical. *v.* Antillis *et in* Europa orient. *crescentes*; foliis *oppositis, planis*; pedunculis *interpetiolaribus*; floribus *cymosis v. thyrsoideis. DC.*

MARSDENIA *maculata*; volubilis glabra, foliis lato-ellipticis membranaceis acutis (rarius obtusis) maculatis basi cordatis, petiolis ad costæ basin pulvinigeris, umbellis densifloris subsessilibus, sepalis ovato-ellipticis subciliatis, corollæ limbo ciliato, coronæ stamineæ foliolis ovatis cum antheris confluentibus, stigmate subapiculato.

This has been long cultivated in the stove of the Royal Gardens of Kew, as a new *Asclepiadeous* plant which had been sent by the late Mr. Lockhart of Trinidad, and we have received flowering plants from Messrs. Lucombe, Pince and Co., of the Exeter Nursery. In 1834 living plants were again transmitted to the Royal Gardens, by our Collector Mr. Purdie, from the plain of Santa Martha, New Grenada. It seems to be a true *Marsdenia,* and is remarkable for its large foliage, spotted with pale yellow, somewhat like the leaves of *Aucuba Japonica,* but with the spots more regular, more equi-distant, and less confluent. It is a great climber, and flowers readily in June: the flowers are of a dark purplish or liver colour, greenish when young, and thus the dense umbels have a mottled appearance. Their texture is rather fleshy, like those of *Hoya.*

DESCR. A strong climbing *plant,* nearly glabrous in every part. *Stems* and *main branches* as thick as as a swan's quill. *Leaves* opposite, large, petiolate, broadly elliptical, membranaceous, acute (rarely obtuse), the base cordate, the whole surface

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marked with pale yellowish spots, of various sizes, but of an irregular orbicular form. The *costa* sends off several strong lateral parallel and almost horizontal *nerves*, and these are more or less united by transverse nervelets. *Petioles* stout, varying in length from one to two inches, the two opposite ones connate at the base around the stem and branch, the apex on the upper side, at the setting on of the leaf, and forming the base of the costa, has a cushion-like tuft. *Flowers* rather large, numerous, collected into a dense hemispherical almost sessile umbel, variegated, pale green, and purplish-brown. *Pedicels* and *calyx* brownish with indistinct down. *Sepals* elliptical-ovate. *Corolla*, with the *tube*, as long as the calyx; *segments of the limb* rather longer, rounded, ciliated. *Segments* of the *staminal crown* ovate, fleshy, not forming an apex distinct from the *anther*, but gradually passing into it. *Stigma* rather acute.

Fig. 1. Flower. 2. Staminal crown.

4300

Fitch del et lith

Reeve imp

TAB. 4300.

CALCEOLARIA AMPLEXICAULIS.

Clasping-leaved Calceolaria, or Slipper-wort.

Nat. Ord. SCROPHULARINEÆ.—DIANDRIA MONOGYNIA.

Gen. Char. Calyx basi ovario brevissime adhærens, 4-partitus, laciniis æstivatione valvatis. *Corollæ* subperigynæ *tubus* subnullus, *limbus* concavus bilobus, lobis integris concavis vel calceiformibus, superiore minore inferiorem vulgo inflatum æstivatione ad margines angustissime obtegente. *Stamina* 2 lateralia, prope basin corollæ inserta, addito rarissime tertio postico, deficientum rudimentum nulla; *antheræ* biloculares v. dimidiatæ. *Stylus* simplex, apice non incrassatus minute stigmatosus. *Ovarium* disco tenui calyci adnato impositum. *Capsula* ovato-conica, septicide dehiscens, valvulis bifidis marginibus inflexis columnam placentiferam nudantibus.—Herbæ *suffrutices*, v. *frutices*, Austro-Americani vel Novo-Zelandici. Folia *opposita aut verticillata rarissime alterna.* Pedunculi *axillares terminalesve cymoso-multiflori vel rarius uniflori.* Corollæ *flavæ, albæ v. purpurascentes.*

CALCEOLARIA *amplexicaulis*; suffruticosa, ramis pilosis, foliis ovato-lanceolatis oblongisve acuminatis crenato-serratis utrinque piloso-hirsutis, panicula subcorymbosa, calycis pilosi laciniis acutis, corollæ labio superiore calycem superante inferiore magno obovato-orbiculato faucem claudente.

CALCEOLARIA amplexicaulis. *H.B.K. Nov. Gen. Am. v.* 3. *p.* 384. *t.* 171. *Spreng. Syst. Veg. v.* 1. *p.* 46. *Benth. in De Cand. Prodr. v.* 10. *p.* 220. *Plant. Hartw.* n. 1272.

A handsome and ornamental *Calceolaria*; though, except in foliage, little differing from many other forms of that genus, which have been some time in cultivation, and on that account perhaps not likely to become a general favourite. It is a native of Peru and Colombia. Humboldt met with it upon the banks of the San Pedro, between Chillo and Conocoto, at an elevation of from seven to eight thousand feet above the level of the sea: Mr. Wm. Lobb at Muña, whence he forwarded seeds to Mr. Veitch of Exeter, where the plant from which the figure here taken was raised; Professor Jameson and Hartweg send it from Quito. There can, I think, scarcely be a doubt of Mr. Veitch's plant being the same as Humboldt's; though the figure in the 'Nova Genera' represents the lips as more apart so as to leave an expanded

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faux; the consequence, probably, of that representation being made from a dried specimen.

Descr. The lower part of the plant I have not seen: the *stem* is from a foot to a foot and a half high. The *leaves* 2–4 inches long, cordato-ovate, gradually acuminated, pubescenti-hirsute, almost woolly beneath, the upper surface marked with depressed reticulated veins, the under with prominent ones. The *peduncles* are terminal, upright, and bear compound *corymbs* of *flowers*, but as there are other and longer peduncles from the axils of leaves below them (each with a pair of ovato-lanceolate leafy *bracteas* at the base of the primary divisions) they collectively form a rather large and very compound *corymb*. *Calyx* of four deep ovato-orbicular, acute, spreading, or somewhat reflexed divisions. *Corolla* closed, formed of two very unequal *lips*; the upper one helmet-shaped, compressed, the lower one almost the shape of a horse's hoof: both pale yellow, spotless.

Fitch del et lith

Reeve imp

TAB. 4301.

IPOMÆA MURICATA.

Fine-leaved Ipomæa.

Nat. Ord. CONVOLVULACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4206.)

IPOMÆA *muricata*; radice tuberosa, caule annuo (non volubili) filiformi ramoso, foliis glabris sessilibus multipartitis laciniis setaceo-filiformibus acutis, pedunculis filiformibus unifloris solitariis axillaribus folio brevioribus fructiferis reflexis, sepalis ovatis mucronatis dorso muricato-tuberculatis, corolla subhypocrateriformi, tubo superne dilatato.

IPOMÆA muricata. *Cav. Ic. v.* 5. *p.* 52. *t.* 478. *f.* 2. *Choisy, in De Cand. Prodr. v.* 9. *p.* 353.

IPOMÆA armata. *Roem. et Sch. v.* 4. p. 214.

CONVOLVULUS capillaceus, *H.B.K. Nov. Gen. v.* 3. *p.* 97. *Spreng. Syst. Veg. v.* 1. *p.* 613.

CANTA tuberosa. *Roem. et Sch. l. c. p.* 793 (*fid. Choisy, who also adds as synonyms*—Ipomopsis tuberosa, *Willd. and* verticillata, *Schlecht.*; Ip. capillacea *and* Leptocallis quinata, *Don*).

A beautiful little species of *Ipomæa*, not very aptly named *muricata* by its first describer (for the base of the sepals alone are tubercled), and very inaccurately described by most authors in regard to its foliage. The leaves are not simple and whorled or fascicled, as they might appear at first sight, but multifid almost to the base; and the segments are often again divided. It would appear, from the numerous collectors through whom I have received it, to be common in many parts of Mexico and Columbia, and hence the numerous synonyms. Yet distinct as it is specifically, it seems little understood. Our living plants were raised from tubers, sent by our collector, Mr. Purdie, from open grassy mountains of the Nivada de Santa Martha, New Grenada. They flowered both at Syon and the Royal Gardens in October, 1845.

DESCR. *Root* an oblong fusiform *tuber*, with a few scattered *fibres*. *Stems* one or more from the crown of the tuber, varying much in length and ramification; sometimes erect and simple, or more or less branched, with the longer branches spreading and flexuose. *Leaves* sessile, rarely exceeding an inch long, glabrous, multifid, divided to the base into five or more segments, which are very narrow, between filiform and subulate, acute, simple or again divided, more or less spreading. *Peduncles* very short, solitary from the axil of the leaves, single-flowered, with one or two minute leaves near the middle. *Calyx* of five segments or sepals, two shorter than the rest; all of them ovato-mucronate, from their middle to the base muricated with small sharp tubercles. *Corolla* rather small, but of a delicate full lilac hue, inclining to rose: the *tube* gradually enlarging upwards: the *limb* strongly plaited, patent. *Stamens* five, included, three short and two long: *filaments* subulate, slightly glandular. *Anthers* oblong. *Ovary* on a fleshy disc. *Style* filiform. *Stigma* capitate, two-lobed, granulated. *Fruit* a globose *capsule*, about the size of a pea, crowned with the persistent *style*, and surrounded at the base with the persistent *calyx*, pendent, or hanging downwards in consequence of the curvature of the fructiferous peduncle.

Fig. 1. Peduncle and calyx with the style and stigma. 2. Ovary and fleshy disc:—*magnified*. 3. Capsule:—*natural size*.

4302

Fitch del. et lith.

Reeve, imp.

TAB 4302

LÆLIA CINNABARINA.

Cinnabar-coloured Lælia.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. Sepala explanata, lanceolata, æqualia. *Petala* majora, paulo difformia, carnosa, explanata. *Labellum* posticum, 3-partitum, lamellatum, circa columnam convolutum. *Columna* aptera, carnosa, antice canaliculata. *Anthera* opercularis. *Pollinia* 8, caudiculis quatuor elasticis.—Herbæ *epiphytæ, rhizomate pseudo-bolbophoro.* Folia *carnosa.* Scapi *terminales, pauci- vel multiflori.* Flores *speciosi, odorati. Lindl.*

LÆLIA *cinnabarina*; pseudo-bulbis cylindraceo-ampullaceis elongatis, foliis binis basi discretis oblongis subrecurvis et undulatis, scapo tenui ascendente foliis multo longiore 4–5-floro, sepalis petalisque oblongo-linearibus obtusis æqualibus, labelli convoluti recurvi lobis lateralibus acutis intermedio ovali crispato, lineis tribus elevatis in axin. *Lindl.*

LÆLIA cinnabarina. *Bateman in Lindl. Sertum Orchidaceum,* tab. 28.

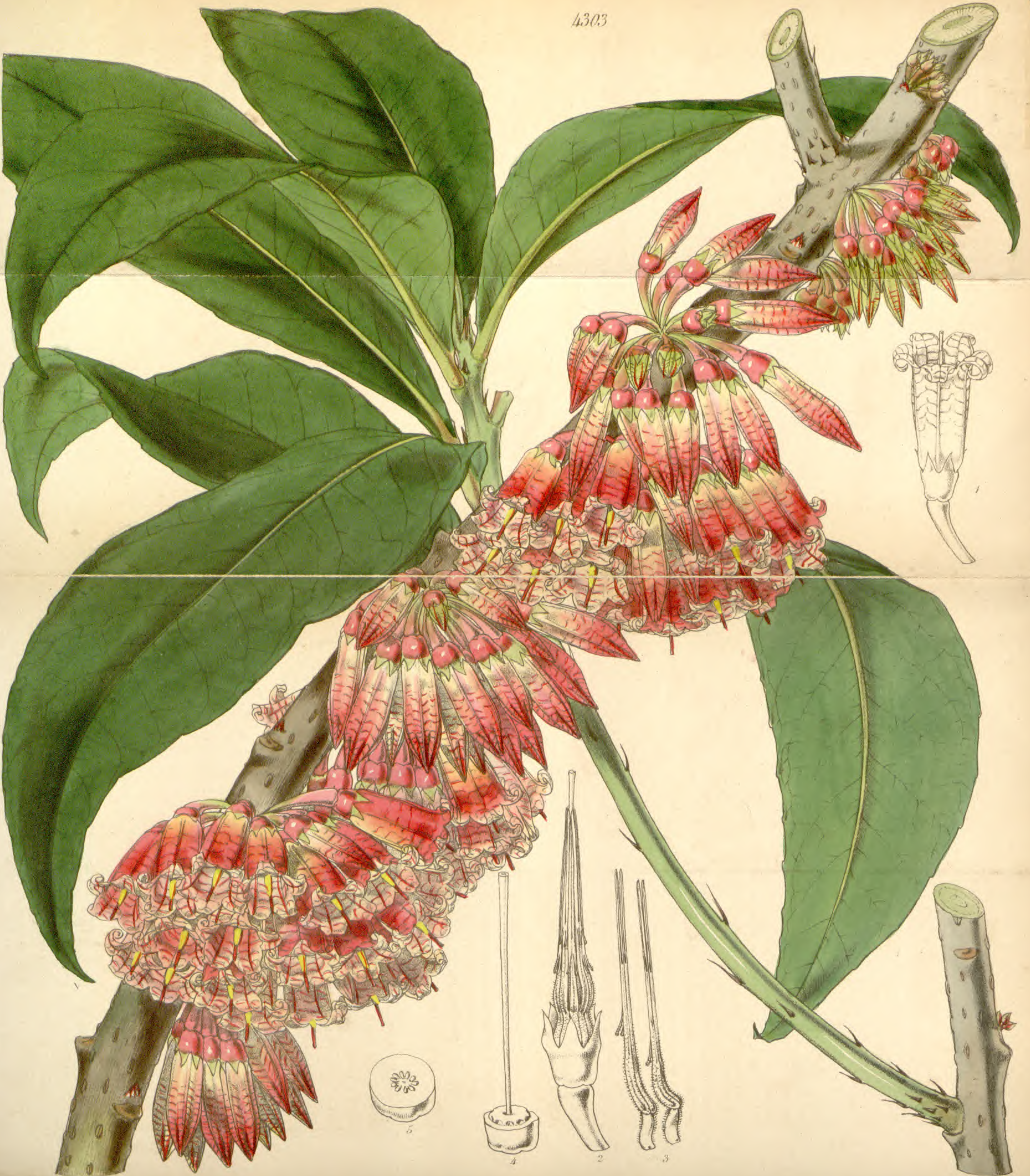
Dr. Lindley has, in the volume of the Botanical Register for 1842 (under folio 62), grouped the fourteen species of *Lælia* then known to him under two heads: 1, *Grandifloræ,* including the well-known *L. autumnalis, majalis,* &c., having the petals distinctly larger than the sepals, all but one natives of Mexico and Guatemala; and 2, *Parvifloræ,* petals the same size as the sepals, all being natives of Brazil. *L. cinnabarina* is the type of the second group, and what it wants in the size of the flowers of the first division is amply compensated, as Dr. Lindley justly observes, by the peculiar colour of its flowers and its graceful manner of growth, "rendering it one of the most ornamental species we possess."

The Orchidaceous House of the Royal Gardens, where our drawing was made in February, 1847, owes the possession of this plant to the Messrs. Loddiges, who received it from Brazil. It appears to have been first introduced, however, from that country, by Mr. Young of Epsom, in 1836.

DESCR. *Pseudo-bulbs* clustered, elongated, subcylindrical, but broadest at the base, clothed with sheathing, acute, pale-coloured, striated scales, and bearing at the extremity one, or generally two, linear, oblong, reflexed, acute, coriaceous *leaves*. *Peduncle* terminal, elongated, with a large sheathing compressed scale at the base, and producing at the extremity a *raceme*, of 5–6 moderately-sized *flowers*, every part of which is of an uniform reddish orange: Dr. Lindley calls them yellow-scarlet. The *ovary* is long, thickened upwards, and has a small lanceolate scale or bract at the base. The *sepals* and *petals* are uniform, patent, lanceolate, acute or sometimes obtuse. The *lip* is convolute over the *column*, oblong, three-lobed, the middle lobe large, oval, acute, crisped and reflexed. The centre of the lip within has three longitudinal elevated plates. *Column* short, semi-cylindrical. *Anther-case* hemispherical, placed in front of the apex. *Pollen-masses*, as in the genus, eight.

Fig. 1. Front view of the column. 2. Interior view of the labellum:—*magnified*.

4303



[illegible]

Reeve imp

TAB 4303

THIBAUDIA PULCHERRIMA.

Beautiful Thibaudia.

Nat. Ord. VACCINIACEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. Calyx semi-adhærens tubuloso-urceolatus brevis subcoriaceus, partitionibus dentiformibus erectis persistentibus. *Corolla* tubulosa, urceolata, 5-dentata, carnosa. *Stamina* decem. *Filamenta* brevia compressa linearia glabra, nunc libera, nunc monadelpha. *Antheræ* elongatæ, biloculares, basi liberæ, medio adnatæ, superne liberæ furcatæ id est loculi superne segregati in tubulos vacuos elongati, rima longitudinali dehiscentes. *Discus* epigynus subinteger, obsolete 5-dentatus, v. 5-gonus. *Bacca* subglobosa, subangulosa, truncata, calycis limbo carnoso coriaceo 5-partito coronata, 5-locularis, loculis polyspermis.—Frutices; caules *erecti diffusique ramosissimi.* Gemmæ *floriferæ axillares terminalesque bracteis squamosis coriaceis subrotundis imbricatis tectæ.* Folia *alterna coriacea sempervirentia, breviter petiolata, petiolis sæpe contortis, sæpius integerrima, interdum denticulata v. serrata.* Flores *racemosi v. subumbellati, pedicellis unifloris bibracteatis, sæpe cernuis, interdum secundis.* Gemmæ *squamæ, bracteæ, calyces, corollæ et baccæ sæpe rubicundi coloris.* Baccæ *sapore grate acido donatæ. Dunal in DC. Prodr.*

THIBAUDIA *pulcherrima*; glaberrima, ramis vetustis elongatis sparse verrucosis floriferis, junioribus terminalibus herbaceis foliiferis, foliis lato-lanceolatis utrinque acuminatis subserratis, floribus numerosis in umbellis sessilibus dependentibus unilateralibus, pedicellis superne incrassatis, alabastro fusiformi 5-gono, corollæ variegatæ tubo cylindraceo-campanulato quinquangulato ore paululum dilatato laciniis acuminatis patenti-reflexis, staminibus styloque subexsertis.

THIBAUDIA pulcherrima. *Wall. mss.*

Rarely have I been more surprised and delighted with any plant than with the flowering specimen of this *Thibaudia* (*Agapetes,* Don), kindly sent from the Exeter Nursery by Messrs. Lucombe, Pince and Co. Imagine a branch four feet and a half long, dividing only at the top in from 4–6 rather short leafy ramuli: the leaves evergreen, 6–8 inches long; the old, long, and woody portion of the stem throwing out, on one side (unilateral), numerous, crowded clusters, or drooping sessile umbels, of from twelve to twenty blossoms in each umbel, and in all states of progress, from the early buds, when they, as well as the pedicels, are scarlet variegated with pale but bright green, to the fully expanded corollas, an inch long, narrowly campanulate, of an ochraceous red, veined and chequered (something like the flower of *Fritillaria Meleagris*) with deeper and brighter lines of red. The inner structure of the flower, too, is very curious, the stamens forming a close column around the style, and the anther-tubes of very great length, as shown by our figure and description. The plant is a native of the north of India, and Dr. Wallich, on my showing him the blossoms and a leaf, recognized it as a native of the district of Khasiya, and to which he had given

the name of *Th. pulcherrima*, a name it well deserves. I find among some of Dr. Griffith's *Vacciniеæ* in my possession, what I believe to be the same species, also gathered at Khasiya: but owing to the absence of corollas some doubt must still remain. It is quite different from any Indian species of *Thibaudia* (or *Agapetes*) yet described. "Planted against one of the walls of our Camellia House (which in winter is frequently within a degree of the freezing point)" observe Messrs. Lucombe and Pince, "in a border composed of peat, loam, and sand, which being very well drained admits of copious waterings during the growing or summer season, it thrives remarkably well, making vigorous shoots from three to four feet long in a year. The copious flowers appear on the *two year old wood*, and first began to develope themselves at Christmas, expanding early in April, and they still continue to expand, many at a time, in succession. It must then be considered a hardy Greenhouse plant, and I consider the best way to cultivate it, is to plant it out in the border of a Conservatory, where it will soon become a noble and interesting object."

DESCR. A rather lofty *shrub*, with long vigorous *branches*, bearing the *leaves* mostly at the extremity of the branches, that is to say, the leaves fall off as the branches are prolonged: *branches*, like every part of the plant, glabrous, pale-brown: on the young ones are small subulate scales (they cannot be referred to stipules) which, falling off, leave a tuberculated scar on the older branches. *Leaves* alternate, crowded at the extremity of the branches, 6–8 inches long, broadly lanceolate, nearly sessile, subcoriaceous, dark green, penninerved, acuminated, subserrate towards the point or even half way down, the under side is pale and more reticulated. The *flowers* appear from the older (not less than two year old) wood, from the axils of the fallen leaves, in uni-lateral *fascicles* or sessile pendent *umbels*. *Peduncles* enlarged upwards, red. *Ovary* turbinate, jointed on the petiole. *Calyx-tube* short, ovato-lanceolate, appressed. *Corolla*, in the state of bud, almost fusiform, with five deep angles: when expanded the tube (thrice as long as the calyx) is between cylindrical and campanulate, five-angled; the limb of five rather short, acuminate, reflexed segments: the colour of the corolla is pale red (sometimes verging to yellow-green), beautifully, both longitudinally and transversely, marked with lines of deeper red. *Stamens* ten, a little exserted. *Filaments* short, broad, ciliated: *anther* very long, subulate, downy, curved at the base, each cell lengthened out into a very slender tube, and bearing a reflexed spur at the back near the middle. *Ovary* fleshy, with ten small cells, the top or disc flat. *Style* longer than the tube of the corolla and a little longer than the stamens, slightly thickened upwards. *Stigma* obtuse.

Fig. 1. Flower. 2. Stamens and pistil. 3. Two of the stamens. 4. Pistil. 5. Section of ovary:—all more or less *magnified*.

4304

Fitch del. et lith.

Reeve, imp

TAB. 4304.

VANDA CRISTATA.

Crested Vanda.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. Perianthium explanatum, patens, petalis sepalisque subæqualibus. *Labellum* saccatum vel obconico-calcaratum, cum basi columnæ continuum, subtrilobum; lobo medio carnoso. *Columna* crassa, libera, abbreviata, rostello obtuso. *Anthera* bilocularis. *Pollinia* 2, oblique biloba, *caudicula* lineari, *glandula* subrotunda.—Herbæ *epiphytæ, caulescentes.* Folia *disticha coriacea.* Spicæ *oppositifoliæ.* Flores *speciosi. Lindl.*

VANDA *cristata*; foliis canaliculatis recurvis apice truncatis oblique excisis tridentatis, racemo erecto trifloro foliis breviore, sepalis oblongis obtusis fornicatis, petalis angustioribus incurvis, labelli lobis lateralibus brevibus acutis intermedio vittato oblongo convexo apice saccato inæqualiter tricorni cornu brevi conico. *Lindl.*

VANDA cristata. *Lindl. in Wall. Cat. n.* 7328. *Gen. et Sp. Orchid. n.* 9. *Sertum Orchid. f.* 3 *in fronte. Bot. Reg.* 1842. *t.* 48.

This has not much beauty to recommend it; but the lip is large, and prettily striped and variegated with blood-colour and yellow upon a velvety ground: and as far as the labellum is concerned, Dr. Wallich was quite correct in saying "flos exquisitæ pulchritudinis." To that liberal gentleman we owe the possession of the species at the Royal Gardens of Kew, where it blooms in the latter end of winter and early in spring, enlivening the stove at that season with its variegated flowers. It inhabits trees in Nepal, where also its flowering season is the spring.

DESCR. The *stems* of this, without any pseudo-bulbs, attach themselves to the trunks of trees by coarse fleshy *fibres,* and are clothed with *leaves,* which imbricate at the base and are broadly linear, thick, and leathery, carinated at the back even to the base, grooved above, abrupt and irregularly three-dentate at the apex. *Raceme* from an axil of the leaf and shorter than the foliage, of five or six straggling, rather large *flowers. Petals* and *sepals* spreading, but incurved and rather concave; the former the narrowest, obtuse, all of the same uniform yellow-green. *Lip* large, broadly oblong, green beneath, with a short conical spur at the base; on each side of the spur two lobes are formed, which almost meet in an incurved manner and are dark blood-purple within: the main lamina or middle lobe is convex, almost saccate about the middle (or, as it were, inflated), the apex cut into three conico-cylindrical points or horns: the upper surface is deep yellow, rich and velvety, marked with blood-purple longitudinal streaks and dots. *Column* short; *anther-case* hemispherical.

Fig. 1. Column and anther:—*magnified*.

4305

Fitch del. et lith.

Reeve, imp.

TAB. 4305.

IPOMÆA PULCHELLA.

Handsome Ipomæa.

Nat. Ord. CONVOLVULACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4206.)

IPOMÆA *pulchella*; herbacea glabra, foliis quinatis lobis anterioribus nunc integris nunc bifidis omnibus elliptico-ovatis petiolulatis acuminatis glabris, pedunculis tortuosis petiolos subæquantibus 1–3-floris, pedicellis clavatis, sepalis latis glabris ext. vix brevioribus acutiusculis int. obtusissimis, corollæ tubo inflato limbi lobis rotundatis emarginatis plicatis.

IPOMÆA pulchella. *Roth, Nov. Sp. Pl.* p. 115. *Wight, Ic. Pl. Ind. Or. t.* 156. *Chois. in De Cand. Prodr. v.* 9. *p.* 387. (*non Don.*)

CONVOLVULUS heptaphyllus. "*Rottl. et Willd. Act. Nat. Cur. v.* 4. *p.* 196." *Roxb. Fl. Ind. v.* 1. *p.* 480. *ed. Wall. v.* 2. p. 66.

CONVOLVULUS bellus. *Spr. Syst. Veget. v.* 1. *p.* 590.

A very handsome Bind-weed, which would much better deserve the name of '*pulchra*' than '*pulchella*'. It was sent, in December, 1845, from the stove of Mrs. Sherbourne, near Prescott, Lancashire, the seeds having been received by that lady from Ceylon. There cannot, I think, be a doubt of its being the *pulchella* of Roth and Choisy. The latter refers to Dr. Wight's figure, which is sufficiently characteristic, allowance being made for our plant being a highly cultivated one. Nor do I see any reason to question its being the *Convolvulus heptaphyllus* of Roxburgh, who accurately describes the twisted character of the peduncles; but a copy of the drawing of Roxburgh's plant, shows the leaves and flowers to be even smaller than those figured by Wight. Choisy describes the main petiole as tuberculate and stipulate: neither of which characters appears in my specimens, nor in Roxburgh's figure; Dr. Wight represents a pair of small pentaphyllous leaves (except in size, exactly resembling those of the stem) at the base of the petiole.

DESCR. A climbing *plant,* with herbaceous angular *stem,* here and there rough with small dots. *Leaves* alternate, petiolate, digitato-quinate; *petiole* shorter than the leaf and twisted or spirally curled like the peduncle: *leaflets* petiolulate (petiolules purple) elliptical ovate, acuminate, entire, full green above, paler beneath, everywhere glabrous. The lower pair of leaflets is said sometimes to divide, so as to make the number seven. *Peduncle* axillary, single flowered, or, as may be judged by the tubercles on our specimens and the figures of authors, two- and even three-flowered, twisted, thickened upwards. *Calyx* of five closely imbricated, erect, rather fleshy *sepals*, nearly equal in height, broadly ovate or subrotundate, the outer rather acute, and a little shorter than the rest; the inner very obtuse, all edged with purple. *Corolla* large, of the same dark purple colour without as within. The *tube* is rather strikingly inflated, immediately above the calyx, so as to be bell-shaped, as far as the faux: the *limb* is spreading, of five rounded rather waved emarginate lobes, much plaited between the lobes. *Stamens* and filiform *style* as long as the tube. *Filaments* woolly at the point of insertion in the corolla. *Ovary* sunk in a fleshy disc or ring. *Stigma* capitate, two-lobed.

Fig. 1. Base of the corolla bearing the stamens. 2. Pistil and hypogynous ring or disc:—*magnified.*

4306

Fitch, del. & lith.

Reeve, imp

4

TAB. 2306.

ACACIA CELASTRIFOLIA.

Celastrus-leaved Acacia.

Nat. Ord. LEGUMINOSÆ.—POLYGAMIA POLYANDRIA.

Gen. Char. Flores polygami. *Calyx* 4–5-dentatus. *Petala* 4–5, nunc libera nunc in corollam 4–5-fidam coalita. *Semina* numero varia 10–100. *Legumen* continuum exsuccum bivalve.—Frutices *aut* arbores, *habitu et foliatione valde variæ.*

ACACIA *celastrifolia*; glaberrima, v. junior glauco-pruinosa, ramulis angulato-triquetris, phyllodiis oblique ovatis obovatisve calloso-mucronatis basi angustatis crasso-coriaceis marginatis infra medium glanduliferis nervo parum incurvo, racemis phyllodio paulo longioribus, capitulis brevissime pedunculatis, ovario glabro. *Benth.*

ACACIA celastrifolia. *Benth. in Hook. Lond. Journ. of Bot. v.* 1. *p.* 349. *Walp. Repert. Bot. v.* 1. *p.* 895. *Plant. Preiss. p.* 14.

If a gracefully formed, much branching evergreen shrub, with rather dense and broadish, bright glaucous-green leaves (*phyllodia*), whose ultimate branches are literally bowed down with the abundance of yellow heads of highly fragrant flowers for nearly two months of the year, and those almost of the winter season, can have any claim to cultivation, then may *Acacia celastrifolia* be confidently recommended. We raised it from Swan River seed, sent by Mr. Drummond, and our plant is now nearly six feet high; so loaded with fragrant blossoms, that it would be in itself sufficient to scent the entire house. While it was in perfection, March, 1847, Messrs. Lucombe, Pince and Co. sent us a noble specimen from their Greenhouse at the Nursery, Exeter. The odour a good deal resembles that of White-thorn, but is more delicate. Although very different it will rank near *A. myrtifolia.*

DESCR. *Shrub* five to six feet or more high, glabrous in every part, the younger shoots glaucous and angled. *Phyllodia* alternate, oblong, elliptical or subovate, acute, slightly tapering at the base, with a callous mucro at the point, margined all round, a strong nerve running through the centre; on the upper margin below the middle is a conspicuous oval glandular depression. A few

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obscure *nerves* branch off obliquely from the costa. At the bottom of the leaf the bases of the mid-rib and of the incrassated margins unite and form a thickened portion or short *petiole*, which is jointed upon the branch. *Peduncles* racemose, longer than the phyllodia, and articulated in their axils; although solitary, they spring from every upper phyllodium, and form a great leafy panicle of the most fragrant *flowers*, and of a palish yellow colour. *Capitula* rather large, but each of few flowers. *Stamens* innumerable in each corolla.

Fig. 1. Base of a leaf. 2. Flower:—*magnified*.

4307

Fitch del. & lith.

Reeve imp.

TAB. 4307.

GARDENIA MALLEIFERA.

Clapper-bearing Gardenia.

Nat. Ord. RUBIACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Cal. tubus ovatus sæpe costatus, *limbus* tubulosus truncatus dentatus fissus partitusve. *Corolla* infundibuliformis aut hypocraterimorpha, tubo calyce multo longiore, limbo per æstivationem contorto patente 5–9-partito. *Antheræ* 5–9 lineares ad faucem subsessiles. *Stigma* clavatum bilobum aut bidentatum, lobis crassis erectis. *Ovarium* dissepimentis incompletis 2–5 semi-divisum, 1-loculare. *Bacca* carnosa calyce coronata intus chartacea aut nucleata incomplete 3–5-locularis. *Semina* minuta, placentis parietalibus carnosis immersa. *Embryo* albuminosus vagus.—Arbores *aut* frutices, *inermes aut spinescentes.* Folia *opposita raro verticillata, ovalia.* Flores *axillares aut terminales, plerumque solitarii albi, demum fuscescentes, sæpius odori. De Cand.*

GARDENIA *malleifera*; foliis obovato-lanceolatis acuminatis glabris in petiolum brevem attenuatis, floribus solitariis subterminalibus vel in axillis dichotomiarum speciosis, calycis tubo fusco-pubescenti superne libero pentagono, laciniis longe subulatis erectis flexuosis, corollæ (albæ v. ochroleucæ) extus pubescenti-tomentosis tubo elongato gracili fauce ampliato latissime campanulato, limbi magni laciniis ovato-rotundatis patentibus, antheris inclusis, stylo superne flexuoso exserto, stigmate maximo malleiformi.

My first knowledge of this fine plant, with its large and fragrant flowers (not unlike the odour of primroses), and extraordinarily large and clapper-shaped stigma, so large and so heavy that it rests as it were on the lower side of the flower, was from dried specimens sent to me by Miss Turner, daughter of the then Governor of Sierra Leone: and I have long had what I considered the same plant but with rather broader, thinner, and green leaves from Senegambia, gathered by Haudelot (n. 809). Again, in 1843, Mr. Whitfield gave me dried specimens which he brought from Sierra Leone, and the same year he enriched the stoves at Knowsley with living specimens. Our plant, which, as far as I know, is the first to have flowered in this country, is derived from the same source, and we gladly illustrate another fine species of a group of *Rubiaceæ* peculiar to tropical western America. The *Gardenias* of that country have been little understood and ill-defined. In describing the truly superb *G. Stanleyana*

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(Tab. nostr. 4185) we had to lament the being obliged to leave it uncertain whether it was the same as the *Rothmannia longiflora* of Salisbury or not. A fine species of *Randia* (or rather, perhaps, *Gardenia*, for the two genera even are by no means clearly distinguished), *R. Bowieana* (Bot. Mag. t. 3409), was sent to us from Kew in 1815, as a plant derived from "Brazil"; but the accurate Mr. J. Smith, at the Royal Gardens, has long since found it necessary to correct that error, and has satisfied himself that it was one of the few plants collected by Mr. Lockhart in Tuckey's Voyage to the Congo. Again, a noble *Randia* is given by Mr. Salisbury in the 'Paradisus Londinensis', t. 93, under the name of *Randia longiflora*, Salisb. (not of Lam.); this is the *Gardenia longiflora* of 'Ait. Hort. Kew' ed. 2. v. i. p. 368 (not of 'Fl. Peruv.') the *Randia macrantha* of De Cand., and *Gardenia macrantha*, Roem. and Sch. Yet the plant was supposed to be only known from the figure in the 'Paradisus.' Lastly, we have in the 'Bot. Register,' 1846, tab. 63, a *Gardenia* from Mr. Whitfield equally introduced by Lord Derby, dedicated to one of the noblest patrons of Botany, His Grace the Duke of Devonshire. A comparison is drawn in favour of this really fine species, as contrasted with our *Gardenia Stanleyana* given not long previously in the Bot. Mag. above quoted: how far correctly, it being a mere matter of taste, the public may judge. Be that as it may, we cannot but express our opinion that this *Gardenia Devoniana* is identical with *Randia longiflora*, Salisb., of which there was a plant six feet high in Mr. Hibbert's collection in 1808, and with *Randia Bowieana*, which was at Kew before 1815, and is there still, at this moment copiously in flower (April, 1847). The earliest specific name must of course be preferred for that plant.

With regard to the present species, warned by former errors, I have taken the greatest pains to see if it is anywhere described; but no published *Randia* or *Gardenia* accords with it: indeed, it seems scarcely possible for any one to describe this species without directing attention to the stigma (for so I here denominate the whole upper swollen part of the style) which really looks more like some diseased thing than the usually delicate extremity of a pistil. I may observe, indeed, that I possess from the Hort. Society of London a fruiting specimen of a *Gardenia* gathered by Mr. G. Don, at Sierra Leone, probably the same and which may be that taken up in Don's edition of 'Miller's Gard. Dict'. under the name of *G.? longifolia*: but when it is known that all that is said of this is, 'shrubby,' branched, unarmed; leaves long, broad, lanceolate, acuminated, entire, membranous, petiolate; flowers terminal, solitary, sessile; fruit largish, roundish, smooth,' we may be well excused from coming to any conclusion about it, especially too, seeing that Mr. Don separates it from the '*Eucliniæ*' of *Randia*, (where he has placed the long-flowered Sierra Leone species) and puts it in *Gardenia*, and further remarks, "perhaps a species of *Pomatium*."

Gardenia malleifera loves heat and moisture, and planted in a good sized pot, with a mixture of peat and loam, makes rapid progress, and begins to flower when only two or three feet high. It would seem in its native country to form a large shrub. We believe at least one other large flowered *Gardenia* from Sierra Leone, brought also by Mr. Whitfield, is in our collection; but has not yet flowered.

DESCR. A *shrub* four to six feet high, often proliferously branched from the axils of the leaves. *Leaves* opposite or ternate, from five and six to nine inches long, obovato-lanceolate, glabrous, between membranaceous and coriaceous, quite entire, dark green above, paler beneath, penninerved, shortly acuminated at the apex, the base attenuated into a short and rather broad *petiole*, brown and transversely cracked. *Stipules* persistent, small, triangular, acuminate, rigid, brown. *Flowers* solitary, terminal, or upon a short scaly stalk, or very small branch between the upper pair of petioles, and which sometimes bears two or even three leaves just below the calyx. *Calyx* rather large, conspicuous, clothed with rusty down; the *tube* long, five-angled, the lower half adnate with the germen, the upper free, and embracing the base of the corolla; segments long (sometimes an inch in length), longer than the tube, subulate, flexuose, rigid, erect. *Flower-bud* club-shaped; the segments of the corolla in that state lapping over each other laterally. *Corolla* a span long, white or cream-white,* soon, in age, changing to tawny; the outside clothed with a short woolly down: the tube four inches long, as thick as a goose-quill, curved, thin, at the top rather suddenly expanding into a broad campanulate *mouth*: the *limb* of five broad ovato-rotundate, slightly wavy, large, spreading segments. This campanulate mouth contains the five sessile linear *anthers*, acute at both ends, placed alternately with the segments, and scarcely projecting beyond the base of the limb. *Style* filiform, longer than the tube, beyond the mouth singularly enlarged into a club, or rather clapper-shaped *stigma*, two and a half inches long and half an inch broad in the thickest part, white, solid, fleshy, streaked in the upper extremity longitudinally with impressions of the anthers, which were applied there in the state of the bud.

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* The *Randia Bowieana* (*Gardenia macrantha*, Roem. and Sch.) is figured in Bot. Mag. with yellowish-buff flowers: this is in consequence of the journey the specimen had to make from Kew to Glasgow. All those large-flowered Sierra Leone *Gardeniæ* soon change from a pure white, or cream-colour, to buff and tawny, and when dry generally become black.

The real stigmatic surface, however, is upon this swollen part, and is distinguished by a cleft on each side the apex, and that cleft is surrounded by a yellow waxy glutinous substance, as shown in our figure.

Fig. 1. Anther :—slightly *magnified*. 2. Pistil :—*natural size*.

4308

Fitch del & lith.

Reeve, imp.

TAB. 4308.

BERBERIS ILICIFOLIA.

Holly-leaved Berberry.

Nat. Ord. BERBERIDEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Sepala 6 squamis 3 extus stipata. *Petala* 6 intus biglandulosa. *Stamina* edentula. *Bacca* 2–3-sperma. *Semina* 2, rarius 3, ad basin lateraliter inserta, erecta, oblonga, testa crustacea, albumine carnoso, cotyledonibus foliaceis ellipticis, radicula longa apice capitellata.—Frutices *foliis primariis abortivis et in spinam sæpius mutatis secundariis in axillis fasciculatis.* Flores *in omnibus flavi. DC.*

BERBERIS *ilicifolia*; erecta, spinis tripartitis, foliis obovatis acutis coriaceis grosse spinoso-serratis, racemis folio subbrevioribus 4–6-floris, pedicellis elongatis subcorymbosis, floribus majusculis globosis aurantiacis, baccis late ovatis lagenæformibus.

BERBERIS ilicifolia. *Forst. Comm. v.* 9. *p.* 28. *Linn. fil. Suppl. p.* 210. *Willd. Sp. Pl. v.* 2. p. 228. *De Cand. Prodr. v.* 1. *p.* 107. *Spreng. Syst. Veget. v.* 2. *p.* 119. *Hook. fil. Fl. Antarct. v.* 2. *p.* 230. *t.* 86.

BERBERIS lagenaria. *Poir. Dict. v.* 8. *p.* 619.

Of this rare and beautiful *Berberry*, hitherto known only to the hardy adventurer on the coasts of Fuegia, beyond the Straits of Magalhaens, living plants were sent home by the Officers of the Antarctic Voyage, under Capt. Sir James Ross, to the Royal Gardens, with other treasures of those Antarctic regions. So much did they suffer during their perilous voyage, that, of the *Berberis*, only one could be successfully reared, and that has, during the month of March, 1847, produced its deep orange-coloured blossoms, which, taken in conjunction with its bright, glossy, holly-leaved foliage, induced Dr. Hooker to consider it, and justly so, the handsomest known species of the genus. The wood is pale yellow, affording a gamboge-coloured dye. The berries are of a deep steel blue colour, and remarkable for their gourd-shape form. We trust to be able to increase it, and to prove that the climate of Britain is suitable to it. Hitherto, on acccount of its variety, we have given it the protection of a cold frame in winter; and in summer it requires to be well screened from the sun.

DESCR. It is described as forming a straggling *bush* in its

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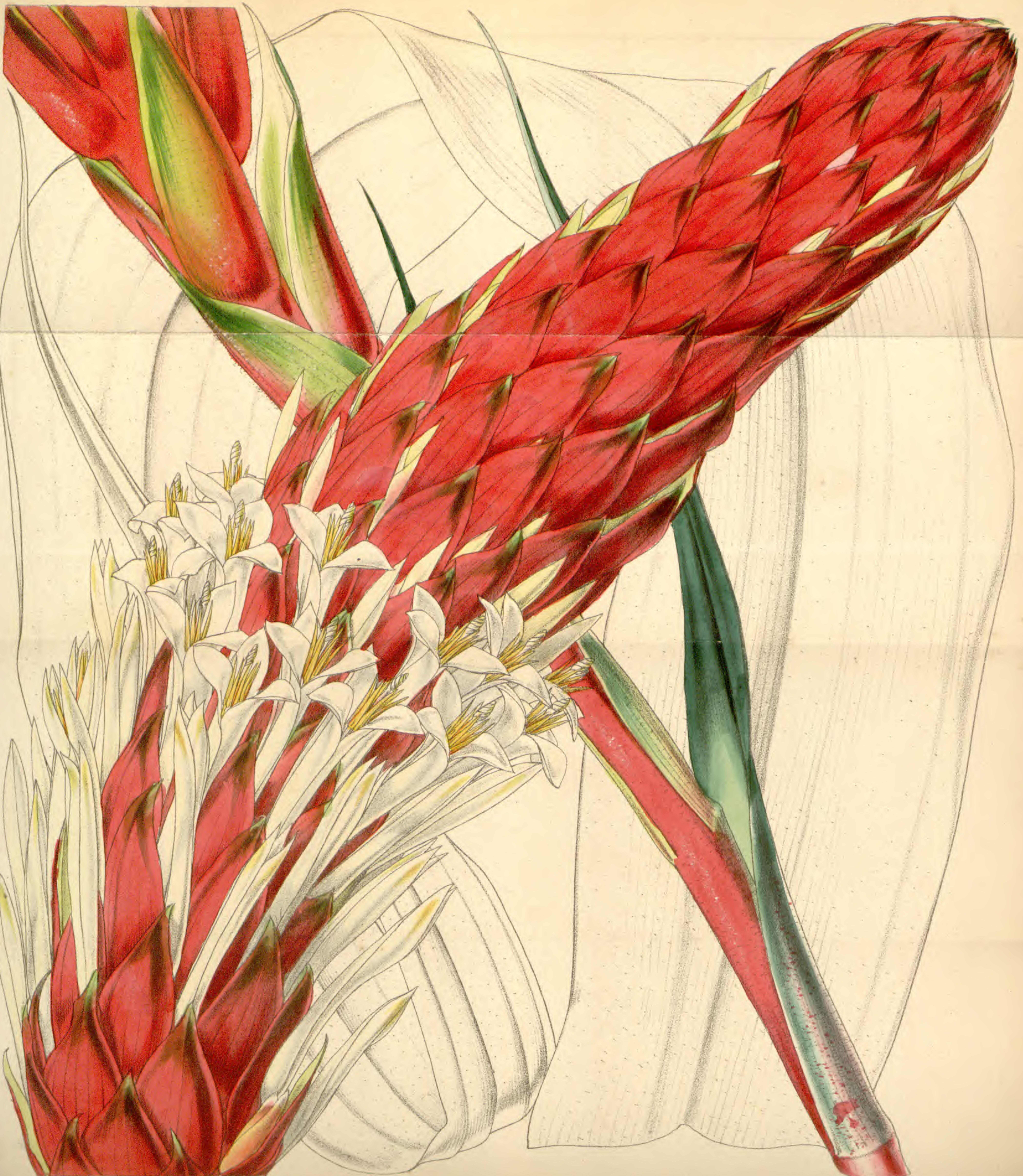
native country, about eight feet high. Young *wood* yellow-brown, Stems angular. *Spines* three-parted, each segment subulate, spreading, often curved. *Leaves* obovate, petiolate, acute, coriaceous, dark shining green, especially above, paler beneath; the margin coarsely and distantly serrated, and each serrature armed with a distinct spur. *Racemes* axillary, subcorymbose. *Pedicels* elongated, slender. *Flowers* globose; *calyx*, as well as *corolla*, of a uniform full golden-yellow or orange colour. *Filaments* with the *anthers* bursting by two lateral valves. *Ovary* subglobose, tapering upwards into the *style* and that surmounted by a peltate *stigma*, depressed in the centre. The shape of the entire *pistil* is that of the bottle-gourd (lageniform).

Fig. 1. Petal and stamen. 2. Pistil:—*magnified*.



Fitch del. et lith.

Reeve imp.

TAB. 4309.

PUYA ALTENSTEINII; var. GIGANTEA.

Altenstein's Puya; gigantic variety.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii liberi sexpartiti *laciniæ* exteriores *calycinæ*, æquales, subconvolutæ, interiores *petaloideæ*, inferne convolutæ, apice patentim reflexæ marcescendo spiraliter convolutæ. *Stamina* 6 hypogyna; *filamenta* subulata, *antheræ* incumbentes, lineares, basi emarginatæ. *Ovarium* liberum, trigonum, triloculare. *Ovula* plurima, in loculorum angulo centrali biseriata, horizontalia, anatropa. *Stylus* filiformis; *stigmata* 3, linearia, spiraliter contorta. *Capsula* cartilaginea, pyramidato-trigona, trilocularis, loculicido-trivalvis. *Semina* plurima, compressa, hinc auguste membranaceo-marginata.—Herbæ *in America tropica et australi extratropica monticolæ, caule simplici interdum subarboreo folioso, foliis angustis spinosis, spicis bracteatis solitariis v. paniculatis. Endl.*

PUYA *Altensteinii*; caule brevi erecto, foliis inermibus distichis angustis longissimis arcuato-pendulis acuminatis nervosis integerrimis aridis margine undulatis in petiolo conduplicato-equitantia attenuatis, spica solitaria pedunculata strobiliformi, bracteis inferioribus foliaceis lanceolato-acuminatis basi semi-amplexantibus superioribus amœne puniceis oblongo-acutis concavis enerviis sessilibus erectis, floribus sessilibus candidis longe exsertis, foliolis perianthii versus apicem ochraceis, staminibus æquilongis.

PUYA Altensteinii. *Link, Kl. et Otto, Ic. Pl. Rar. Berol. v.* 1. *t.* 1.

PITCAIRNIA undulatifolia. *Hortulan. Hook. Bot. Mag. t.* 4241.

β. gigantea; 5–6-pedalis, foliis spica triplo majoribus.

Some time ago, we received at the Royal Gardens of Kew a plant, under the name of "*Pitcairnia undulatifolia*," which was published at Tab. 4241 of the present work. The same was afterwards sent from Berlin under the name of *Puya Altensteinii*[*]: those two plants were identical, and our figure above quoted represents as accurately the one as the other. In the spring of the present year, 1847, we were astonished by the splendour of a plant, liberally presented to the Gardens by Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, of so gigantic a size, with such large leaves and such a massy spike of flowers, with innumerable richly-coloured bracteas, that positively neither I nor those who first saw it with me, could recognize it as the *Pitcairnia undulatifolia* of Bot. Mag., or the *Puya Altensteinii* of the Prussian botanists. Yet a rigid comparison has satisfied me that they are the same, and there is no reason to doubt that, whoever will give the plant plenty of heat, light, moisture, and pot-room, may have it growing in the like perfection with Messrs. Lucombe and Pince. Any one can now assure himself, by looking at the accompanying figure, that I ought not to be satisfied with representing the small state alone of the plant, with the observation that it is a very showy species, and no collection should be without it. The var. *gigantea* is truly magnificent: its flowering season has hitherto been February and March; when one such specimen (standing as it does five feet high from the ground) gives effect to a large portion of a stove.

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[*] Let it be observed, too, that the figure, in Link, Klotzsch, and Otto's 'Icones' above quoted, is as dwarfish as, and in every respect resembles, the Bot. Mag. representation of *Pitcairnia undulatifolia.*

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The description, given under *P. undulatifolia*, tab. 4241, will suffice for the present species.

Fitch del et lith.

[illegible]

TAB 4310

HYPOCYRTA LEUCOSTOMA.

White-mouthed Hypocyrta.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. *Calyx* liber, profunde 5-partitus, lobis lanceolatis integerrimis. *Corolla* tubulosa, basi postice gibba, tubo antice ventricoso, limbo 5-lobo aut 5-dentato subæquali. *Stamina* 4 didynama cum quinti postici rudimento ex ima basi tubi. *Antheræ* per paria cohærentes. *Annulus hypogynus* et glandula postica. *Stigma* bilobum aut infundibuliforme indivisum. *Bacca* globosa succosa 1-locularis, placentis 2 parietialibus bilobis. *Semina* ∞ oblonga aut ovata.—Fruticuli *Brasilienses extensi et radicantes, rarius erecti.* Folia *opposita crassiuscula.* Flores *axillares solitarii aut aggregati.* Corollæ *coccineæ roseæ albæ aut ochroleucæ. DC.*

HYPOCYRTA *leucostoma*; erecta tota pubescenti-tomentosa, caule herbaceo obtuse tetragono, foliis oppositis petiolatis oblongo-lanceolatis insigniter rugosis crenato-serratis, pedicellis axillaribus aggregatis petiolum subæquantibus, floribus nutantibus, corollæ subvillosæ tubo aurantiaco lateraliter compresso antice sursum insigniter ventricoso dorso basi gibboso, ore contracto, limbi albi laciniis rotundatis subæqualibus.

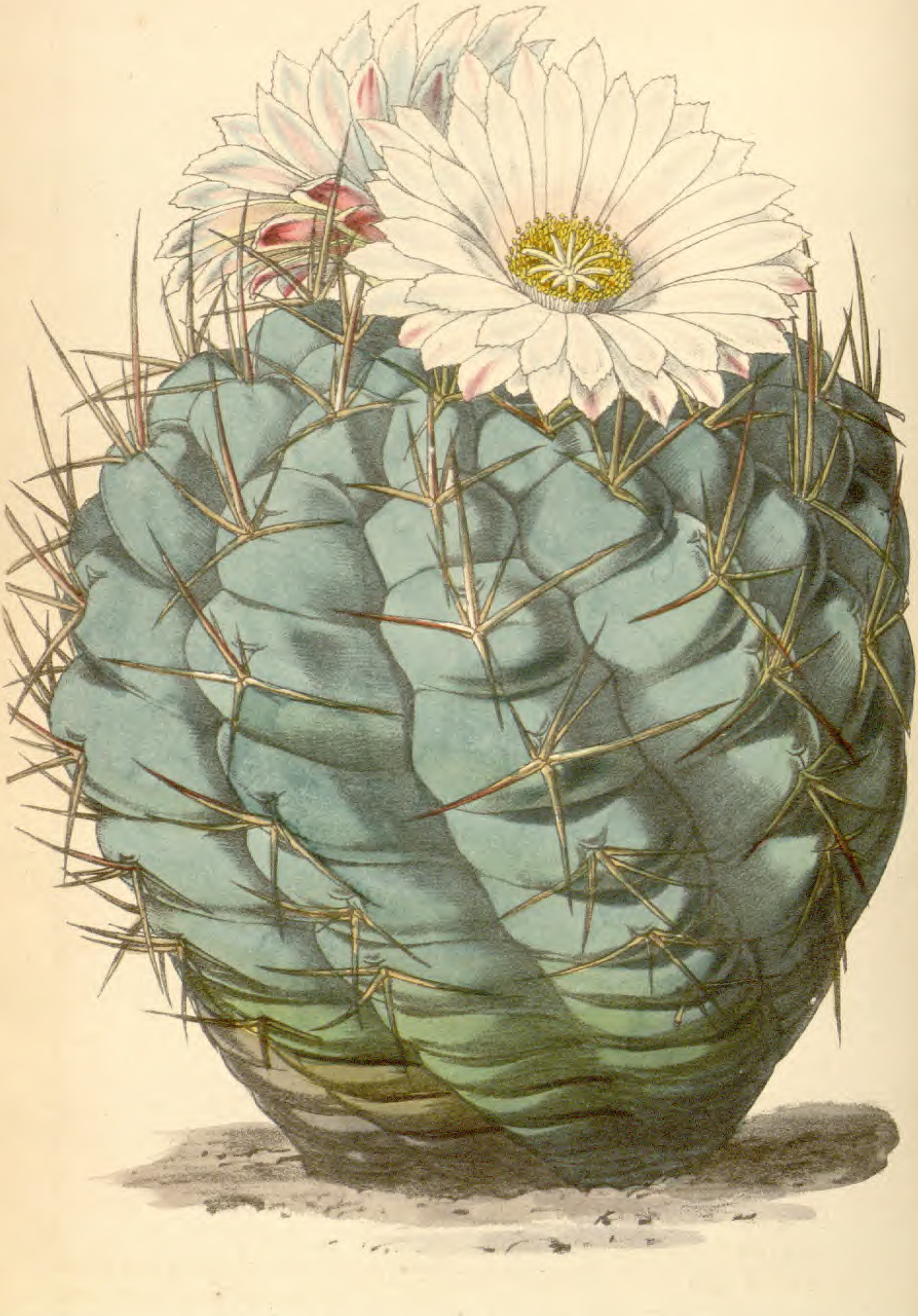
A Gesneriaceous plant, received by Mr. Purdie from New Grenada; and which I think I am not incorrect in referring to Martius' genus *Hypocyrta*, the first extra-Brazilian species yet described. The genera of *Gesneriaceæ* may still, however, be said to be in a very unsettled state. It bears its pretty drooping axillary flowers in the moist stove in April.

DESCR. *Plant* about a foot high, erect, obtusely tetragonal, clothed in every part with a short copious but rather rigid covering of woolly hairs. *Leaves* on lateral compressed *petioles*, opposite, oblong, or subovato-lanceolate, acuminate, crenato-serrate, penninerved: the nerves united by closely interwoven reticulations, so as to give a nettle-like roughness to the surface (densely rugose). *Petioles* nearly half an inch long. *Peduncles* about the length of the petiole, axillary, erect, hairy, aggregated, simple, bearing each a solitary drooping *flower*. *Calyx* of five nearly equal, oblong, acute *sepals*. *Corolla* three quarters of an inch long: the *tube* slightly hairy, tawny

orange, laterally compressed, beneath, near the limb, very ventricose, at the base above gibbose: this gibbosity varies in our specimens, sometimes forming a spur; but in that particular corolla, on the opposite side, is a petaloid strap-shaped appendage. *Stamens* inclosed, four, didynamous, with a minute abortive fifth. *Ovary* ovate, silky, the base surrounded by an annular *disc*. Distinct glands obsolete. *Style* included, articulated upon the ovary. *Stigma* subinfundibuliform, oblique.

Fig. 1. Flower. 2. Corolla laid open. 3. Pistil. 4. Ovary cut through transversely:—*magnified*.

4311



Fitch del. & lith.

Reeve, imp.

TAB. 4311.

ECHINOCACTUS HEXÆDROPHORUS.

Hexædron-Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4190.)

ECHINOCACTUS *hexædrophorus*; globosus vertice planus saturate glaucus mammillarie tuberculatus tuberculis plane hexædris in duplicem seriem alternantibus (verticalem et spiralem), areolis immersis albido-tomentosis sursum elongatis, aculeis septem radiantibus inæqualibus, centrali uno validiori et duplo longiori, omnibus teretibus subulatis striatis. *Lam.*

ECHINOCACTUS hexædrophorus. *Lemaire, Cact. Nov. Gen. et Sp.* p. 27. *Walp. Repert. Bot. v.* 2. *p.* 322.

This handsome *Cactus* has long been cultivated at Kew, under the name here given, and it is said by the authority for that name to be a native of Tampico. It is of a nearly globose form and remarkable for its large tubercles, which are obscurely six-sided, whence the specific appellation is derived. Lemaire further says that the direction of these tubercles is in a double series, vertical and spiral; the double series in our plant is not an evident character, though it may sometimes be discerned. Its flowering season is June, and the blossoms are lively and pretty.

DESCR. Entire plant subglobose or turbinate, flattened at the top, divided into large six-sided depressed mammillæ, the lower and older part compressed and brown, the rest of a glaucous tint, the tubercles or mammillæ arrayed in spiral lines, with deep furrows between them. The areola is indicated by a linear depression in the disc of the tubercle, from which the cluster of spines springs. The spines are from four to seven in number, varying in length from half an inch to nearly an inch; the central one is the longest and strongest: all of them are rather stout, of a reddish-brown, subulate, more or less spreading. *Flowers* 2—3 from the crown of the plant. *Calyx* gradually passing into the numerous delicate, spreading, closely imbricated,

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linear *petals,* white, streaked with pink or deep rose on the outside, and sometimes faintly so within: their base is yellow. *Stamens* numerous, compact, full yellow. *Stigma* of 9—11 white spreading rays.

4312

W. Fitch del. et lith.

Reeve imp.

TAB. 4312.

ACHIMENES CUPREATA.

Copper-leaved Achimenes.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calycis tubus ovario adnatus, limbus 5-partitus, lobis lanceolatis. *Corolla* tubuloso-infundibuliformis basi hinc sæpe gibba, limbo plano 5-fido, lobis subæqualibus subrotundis. *Stamina* 4, didynama, antheris non cohærentibus. *Rudimentum stam.* quinti corollæ basi inferne impositum. *Nectarium* glandulosum annulare tenue. *Stylus* in stigma vix incrassatum obliquum aut subbilobum abeuns. *Capsula* semibilocularis bivalvis, placentis parietalibus subsessilibus.—Herbæ *Americanæ erectæ villosæ.* Folia *opposita aut ternato-verticillata petiolata dentata.* Pedicelli *uniflori axillares.* Corollæ *coccineæ aut purpureæ. DC.*

ACHIMENES *cupreata*; repens stolonifera undique pubescenti-hirsuta, foliis ellipticis petiolatis serratis reticulatim rugosis coloratis, pedunculis axillaribus solitariis petiolo longioribus unifloris, calycis laxi profunde 5-partiti, laciniis subspathulatis inæqualibus, corollæ tubo calycem subduplo superante curvato intus maculato ore fimbriato limbi patenti laciniis rotundatis planis ciliato-dentatis, staminibus styloque inclusis, ovario hirsuto hinc basi uni-glanduloso.

A new and highly interesting species of *Achimenes*, remarkable for the dark-copper colour on the upper side of its rather large, elliptical leaves (not unlike, in hue, those of the copper-coloured beech), purplish-rose beneath, and the rich scarlet flowers, with the segments of the limb, beautifully toothed and ciliated. It was detected by Mr. Purdie, on moist banks, near Sona, New Grenada, and from seeds sent by him in September, 1845, to the Royal Gardens, plants were reared which flowered in April, 1847. It requires the same treatment as other species of *Achimenes*. A shallow pan is soon filled with it owing to the extraordinary stoloniferous nature of the plant; among the dark coppery leaves the bright flowers have a very pretty effect.

DESCR. *Root* a much-jointed *rhizoma*. *Stems* varying in length, creeping, branched, and stoloniferous, sending out radicles abundantly from the procumbent branches. A main branch rises erect a few inches from the ground, and this portion seems to bear the flowers and the largest leaves. *Leaves* hairy, with rather short dense down, as is almost every part of the plant, elliptical and obtuse, reticulato-venose, wrinkled, serrate, above rather glossy and dark copper-coloured, beneath purplish-rose. *Peduncles* erect, solitary, axillary, longer than the petioles, single-flowered. *Flower* inclined almost horizontally. *Calyx* however, erect, divided to the base into five, lax, spathulate lobes, of which one is smaller than the rest and more spreading, forced back, as it were, by the gibbous base of the corolla. *Corolla* rich scarlet, hypocrateriform; *tube* hairy, twice as long as the calyx, yellow, spotted with red within, *mouth* fimbriated. *Limb* oblique, of five rounded, dentato-ciliate, spreading segments. *Stamens* four, didynamous. *Filaments* united at the base. *Anthers* combined. *Ovary* hairy, with a large yellow *gland* corresponding with the *spur* of the corolla. *Style* included. *Stigma* capitate, with an oblique perforation.

Fig. 1. Calyx and pistil. 2. Corolla laid open. 3. Ovary and gland. 4. Section of ditto:—*magnified.*

4313.

Fitch del et lith.

Reev

TAB. 4313.

ANGULOA CLOWESII, *var.*

Mr. Clowes' Angoloa, variety.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. Flores subglobosi, nunquam patentes. *Sepala* lateralia invicem imbricantia, basi valde convexa, nec in cornu producta; alterum nunc anticum nunc posticum, conforme, basi planum. *Petala* sepalo dorsali æqualia, et similia. *Labellum* coriaceum, unguiculatum, subconvolutum, trilobum, lamina carnosa lata plana supra medium auctum, basi quasi bilabiatum. *Columna* teres, clavata, libera; clinandrio nunc mutico, nunc lacinia acuta porrecta utrinque aucto. *Anthera* galeata, valvis membranaceis nunc in lacinulas acutas productis. *Pollinia* 4, plana, inæqualia, *caudicula* longa lineari, et *glandula* acuta.—Herbæ *epiphytæ* Granatenses *et* Peruvianæ, Lycastis *facie. DC.*

ANGULOA *Clowesii*; pedunculo unifloro radicali laxe squamato, flore carnoso (resupinato, *Lindl.*) sepalis petalisque ovatis convexis conniventibus, labelli trilobi lobo medio piloso infundibulari bilabiato tridentato, columna integra.

ANGULOA Clowesii. *Lindl. Bot. Reg.* 1144. *Misc.* 29. *et tab.* 63.

Var. floribus flavis, labelli lobo medio aurantiaco.

Notwithstanding some very trifling discrepancies in structure, and more marked ones in the colour of the flower, I cannot consider this fine plant other than a var. of *Anguloa Clowesii,* figured by Dr. Lindley in the 'Botanical Register' above quoted. Our flowers have, indeed, the ordinary position of those of *Orchideæ* generally, and are not "resupinate", as Dr. Lindley's flower was, according to his acceptation of the term; but probably much stress cannot be laid on that character. The plant here figured was sent by Mr. Purdie to the Royal Gardens of Kew, and bloomed in the collection at Syon (whence our figure is derived) under the skilful management of Mr. Carton, in May, 1847. The blossoms are fragrant.

DESC. *Pseudo-bulbs,* when old, leafless, oblong, broadest above the base, obscurely furrowed. *Leaves* several, broadly obovato-lanceolate, membranous, striated, arising from scarcely-formed pseudo-bulbs, which are surrounded by green scales or imperfect leaves. *Scapes* single-flowered, from the base of the pseudo-bulbs, about twice the length of them, erect, stout, partially clothed with sheathing green bracteas, the largest one embracing the ovary. *Flower* large, handsome, fragrant, subglobose, almost entirely of an uniform yellow colour. *Petals* and *sepals* uniform, except that the former are smaller, broadly orbicular, ovate, acute, very concave. *Lip* rather shorter than the rest of the perianth, ovate, concave at the base, three-lobed, lateral lobes acute, yellow, glabrous, intermediate one hairy, orange-coloured, subdeltoid, three-toothed (middle tooth very large), two-lipped, upper lip subobcordate, much shorter than the acuminated lower one. *Column* large, wingless. *Caudicula* of the pollen-masses toothless in this variety.

Fig. 1. Labellum 2. Pollen-masses :—*magnified.*

4314.

Fitch del. et lith.

Reeve imp.

TAB. 4314.

LEUCOTHOE PULCHRA.

Elegant Leucothoe.

Nat. Ord. ERICEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. *Calyx* 3-lobus, lobis nec demum carnosis nec sensim auctis. *Corolla* ovata aut cylindracea, rarius ovato-campanulata, ore plus minus contracto 5-dentato. *Stamina* 10 inclusa, filam. subdilatatis complanatis sæpe villosis, antheris ovatis truncatis muticis apice biporosis. *Stylus* filiformis. *Stigma* simplex capitatum. *Capsula* depresso-globosa, 5-locul., 5-valvis, loculicido-dehiscens, suturis nullo modo ut in *Lyonia* valvæformibus. *Semina* ovato-angulato.—Frutices *elegantes* Americani *aut* Asiatici. Folia *sempervirentia aut decidua, integra aut dentata.* Flores *albi aut rarius coccinei, dispositione varii.*

LEUCOTHOE *pulchra*; erecta glaberrima, ramis angulatis, foliis brevissime petiolatis elliptico-cordatis obtusis retusis mucronatis coriaceis marginatis siccitate præcipue reticulatis subtus nervis prominentibus, racemis folia longe superantibus axillaribus solitariis pendentibus, floribus secundis, corollis ovato-cylindraceis, limbi dentibus parvis erectis.

LEUCOTHOE pulchra. *De Cand. Prodr. v.* 7. *p.* 604.

ANDROMEDA pulchra. *Cham. et Schlecht. in Linnæa, v.* 1. *p.* 521. *et v.* 8. *p.* 507. (*non Arrab.*)

AGANOTA pulchra. *Don, Gard. Dict. v.* 3. *p.* 837.

Received at the Royal Gardens of Kew, from Mr. Makoy of Liege, as a "*Vaccinium*" from Caraccas. It will now merge in the genus *Leucothoe* as restricted by De Candolle, and is unquestionably the *Andromeda* (*Leucothoe*) *pulchra* of Chamisso and Schlechtendal, of which we have authentic specimens from Brazil, chiefly gathered by Sellow. *L. pulchella* (Androm. *Cham. et Schlecht.*) is probably not different; and *L. crassifolia* and *L. crenifolia* are perhaps mere forms of the same species. This plant flowers in a cool green-house in May, and is equally handsome in foliage and in flower.

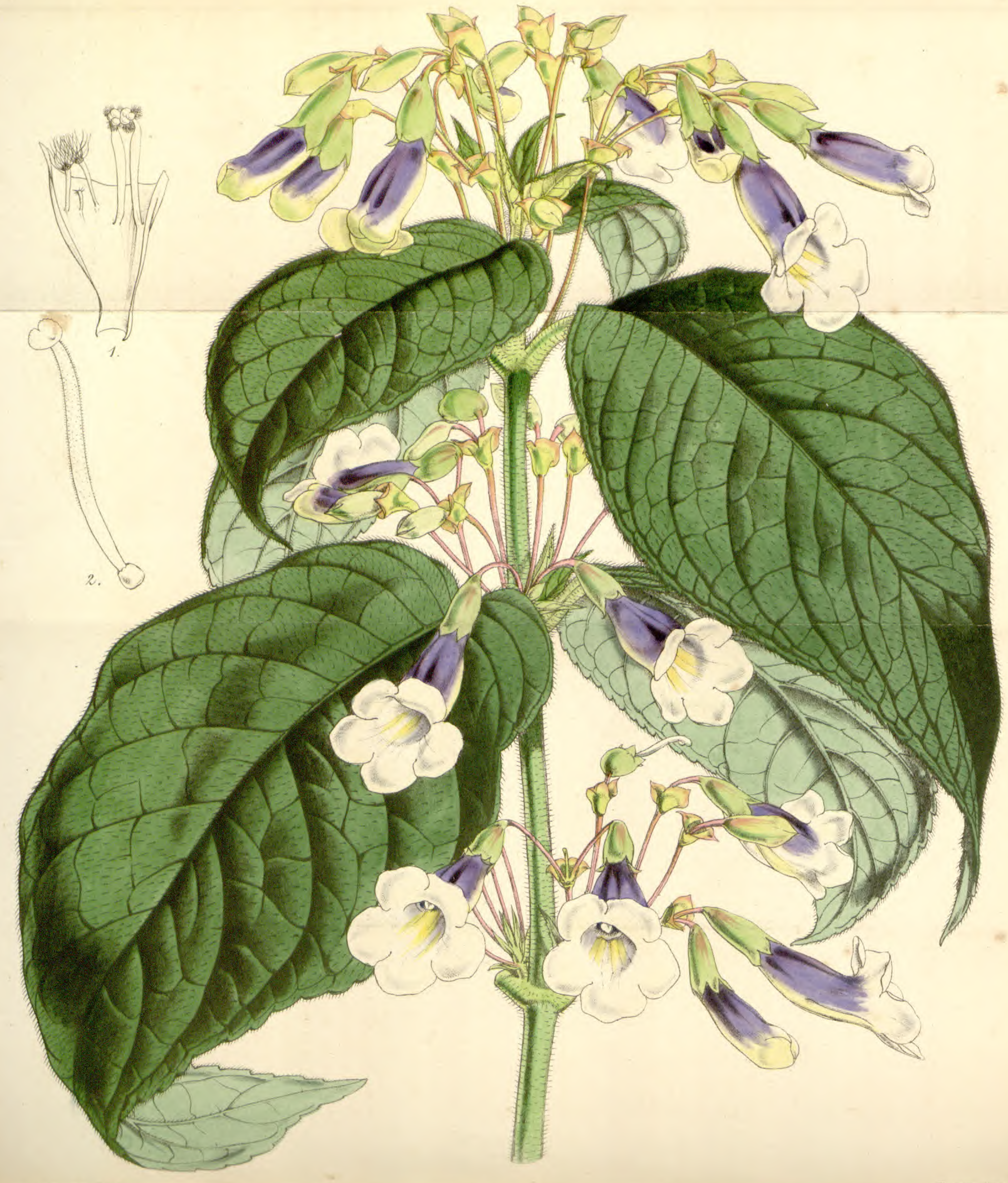
DESCR. A *shrub*, two or more feet high, glabrous in every part. *Branches* erect, many-angled, pale brown. *Leaves* rather closely placed, alternate, on very short *petioles*, an inch or rarely more long, elliptical-cordate, coriaceous, obtuse, mucronate, reticulated with small areolæ, principally seen when dry, and parti-

JULY 1ST, 1847.

cularly on the underside: the primary nerves have there frequently a conspicuous *gland*, at a little distance from the mid-rib. *Racemes* four inches or more long, consequently much longer than the leaves, axillary, solitary, pendent. *Pedicels* shorter then the flower, bracteolated. *Flowers* numerous, unilateral, pointing downwards. *Calyx* articulated upon the pedicel, fleshy at the base, with five short broad, acute, slightly ciliated lobes. *Corolla* between ovate and cylindrical, greenish-white, with a pale obscure reddish band near the middle: mouth small, with five small erect teeth. *Stamens* ten. *Filaments* dilated below, hairy, with a double curve below the anther, which latter is ovate, muticous, opening by two pores, the pore or mouth two-lipped. *Ovary* globose. *Style* straight, included.

Fig. 1. Flower. 2. Pistil. 3. Stamen:—*magnified*.

4315.



W. Fitch del. et lith.

Reeve imp.

TAB. 4315.

LIEBIGIA SPECIOSA.

Showy Liebigia.

Nat. Ord. CYRTANDRACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calyx tubulosus 4–5-fidus lobis subæqualibus. *Corolla* infundibuliformis sursum ampliata limbo inæquali 5-lobo subbilabiato. *Stam.* 4 inclusa quorum 2 antherifera. *Antheræ* biloculares cohærentes, loculis insertione æqualibus. *Stigma* subbilamellatum. *Capsula* siliquæformis elongata pseudo-4 locularis bivalvis, septi contrarii lobis in margine revoluto seminiferis. *Semina* minuta pendula basi in alam membranaceam expansa.—Frutices *Javani seu Moluccani, erecti aut radicantes.* Folia *opposita æqualia aut inæqualia serrata.* Pedunculi *elongati axillares.*—Genus *Didymocarpo* affine, seminibus saltem basi membranaceo-alatis distinctissimum. *DC.*

LIEBIGIA *speciosa*; elata, erecta, pubescenti-scabra, foliis oppositis inæqualibus ovato-ellipticis acuminatis serratis supra hirsuto-asperis, pedunculis axillaribus aggregatis bifidis dichotomisve, floribus diandris.

LIEBIGIA speciosa. *De Cand. Prodr. v.* 9. *p.* 259.

TROMSDORFFIA speciosa. *Blume, Bijdr. p.* 762.

This is a lovely plant, well deserving the name of "*speciosa*", and, in its genus, equally worthy to bear the name of the most distinguished Chemist of the present day. It was discovered in Java by Blume, and in the work above quoted is published as a new genus under the name of *Tromsdorffia*; but there being already a genus of Martius bearing that appellation, that given by Endlicher is here adopted. The species was imported from Java through the means of that zealous collector, Mr. Thos. Lobb; and we had the gratification of receiving the fine specimens here figured in February, 1847, from Messrs. Veitch and Son of Exeter.

DESCR. *Stem* herbaceous, a foot and a half to two feet high, terete, rough with harsh down. *Leaves* large, opposite, the pairs unequal in size, spreading, petiolate, rough with harsh down, and the upper side still more rough with rigid hairs; the form between ovate and elliptical, acuminate, serrated, penninerved and reticulated. *Peduncles* axillary, aggregated, much shorter than the leaves, forked or dichotomous, the upper ones almost panicled or corymbose, the pedicels bracteated. *Flowers* drooping, *Calyx* tubular, subcylindrical, tapering at the base, the mouth cut into five erect, nearly equal teeth. *Corolla* tubular; *limb* spreading, oblique, of five nearly equal lobes, pale yellow-white, with a purple tinge above near the base. *Filaments* four, (with an imperfect fifth), of which two are abortive, terminated each by a lax tuft of hairs: the longer ones are fertile and have also a short tuft of hair beneath the anthers. *Ovary* linear-terete, arising from a fleshy ring. *Stigma* obscurely two-lobed, depressed in the centre.

Fig. 1. Stamens. 2. Pistil:—*magnified.*

4316.

Fitch, del. et lith.
Reeve, imp.

TAB. 4316.

ABELIA FLORIBUNDA.

Copious-flowering Abelia.

Nat. Ord. CAPRIFOLIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calycis tubus oblongus, limbus 2- vel 5-partitus foliaceus, laciniis oblongis. *Corolla* tubuloso-infundibuliformis 5-loba, lobis ovatis subæqualibus. *Stamina* 4 didynama vel subæqualia. *Stigma* capitatum. *Ovarium* 3-loculare, loculis 2 polyspermis abortientibus, tertio monospermo fertili. *Pericarpium* 1-spermum indehiscens calycis limbo foliaceo aucto coronatum.—Frutices *decumbentes v. debiles glabri.* Folia *petiolata dentato-crenata.* Pedunculi *modo terminales indivisi.* Involucrum *bi-multiflorum, foliolis sex pluribusve. DC.*

ABELIA *floribunda*; fruticosa erecta, foliis brevi-petiolatis ovatis obtusis reticulatis glabris ciliatis, pedunculis subterminalibus axillaribus 1–3-floris bibracteolatis, involucro minimo 1–5-dentato, calycis laciniis lineari-oblongis foliaceis ciliatis, corollis nutantibus (magnis) longe tubulosis, tubo inferne constricto superne dilatato intus hirsuto, limbi laciniis rotundatis subæqualibus patentibus, filamentis hirsutis styloque exsertis.

ABELIA floribunda. "*Decaisne, MS. in Van Houtte, Fl. der Gewächshäus. und Gärten. v.* 2. *t.* 4." *Walpers, Repert. Bot. Syst. v.* 6. *p.* 3.

VESALEA floribunda *and* VESALEA hirta. *Mart. et Galeot. Bullet. de l'Acad. Brux.* xi. *No.* 3. *p.* 31.

From the Royal Gardens of Kew, to which it was presented by M. Van Houtte. It is a Greenhouse plant, and bears its lovely flowers during the spring months, continuing a long time in great beauty. The species has attracted much attention, and has been exhibited at the Horticultural shows with the generic name variously written, and sometimes corrupted into *Russelia.* Martens and Galeotti assure us, in the Bulletin above quoted, that it is cultivated in the Gardens of Belgium under the name of *Fuchsiæ sp. Mexic. Vesalea,* however, is the name originally given to it by Martens and Galeotti, in compliment to a distinguished anatomist, Vesale (" in honorem celeberrimi Belgici Anatomici Vesalei). In constituting this new genus of *Caprifoliaceæ,* they notice, indeed, its affinity with *Abelia* of Brown, and Decaisne is quite correct in removing it to *Abelia* itself. All the other Abelias are Chinese or Japanese, even *A. rupestris,* Lindl. (the "Chamoo hills", where it was found by Mr. Fortune, being situated in China, not the East Indies as stated by Walpers), with the exception of Dr. Wallich's *Abelia triflora*, which is from Kamoun in Northern India. The Mexican species was discovered by Galeotti in the Cordillera of Oaxaca and Vera Cruz (there also by Linden), on the peak of Orizaba; elevations between 9—10,000 feet.

DESCR. Our *Plant* is between two and three feet high, shrubby, branched, erect, but of rather straggling growth, the younger branches pubescent. *Leaves* opposite, ovate, sometimes broadly so, small, obtuse, crenate, glabrous, minutely ciliated at the margin, much veined and reticulated, more so beneath, and there of a paler colour. *Flowers* axillary, but from the extremity of the branches, large, handsome, pendent. *Peduncles* with two small bracteas, short, one-, two-, or three-flowered. *Ovary* inferior, almost fusiform, flattened on one side: a transverse section exhibits two small (abortive?) cells, and one large (fertile?) one: this ovary is inserted in a very minute irregularly-toothed *involucre*. *Calyx*-segments five, very large, linear-oblong, erecto-patent, foliaceous, veiny, ciliated, two generally more or less combined. *Corolla* two inches or more long, purple-red: the *tube* long, narrow at the base, gradually enlarging upwards, a little curved, hairy within; *limb* nearly regular, of five obtuse, rounded lobes. *Stamens* four, slightly didynamous. *Filaments* a little exserted, hairy, inserted above the base of the corolla. *Anther* oblong. *Style* slender, filiform, exserted a little beyond the stamens. *Stigma* dilated.

Fig. 1. Calyx and pistil. 2. Corolla laid open. 3. Inferior ovary cut through transversely:—*magnified.*

Fitch, del. et lith.

Reeve imp

TAB. 4317.

DRYANDRA CARDUACEA; var. ANGUSTIFOLIA.

Thistle-like Dryandra; narrow-leaved variety.

Nat. Ord. PROTEACEÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. Perianthium 4-partitum v. 4-fidum. *Stamina* apicibus concavis laciniarum immersa. *Squamulæ* hypogynæ 4. *Ovarium* biloculare, loculis monospermis. *Folliculus* ligneus: dissepimento libero, bifido. *Receptaculum* commune planum, floribus indeterminatim confertis: paleis angustis, raro nullis. *Involucrum commune* imbricatum.—Frutices *plerumque humiles.* Rami *dum adsint sparsi v. umbellati.* Folia *sparsa, pinnatifida v. incisa, plantæ juvenilis conformia.* Involucra *solitaria, terminalia, raro lateralia, sessilia,* foliis *confertis, interioribus quandoque nanis obvallata, hemisphærica,* bracteis *adpressis, in quibusdam apice appendiculatis.* Stylus *sæpe perianthio vix longior. Br.*

DRYANDRA *carduacea*; ramis pubescentibus, foliis lanceolatis remote sinuato-spinoso-dentatis versus basin nunc spinoso-pinnatifidis, supra glabris subtus niveo-tomentosis, involucri glabri (floribus triplo minoris) foliolis arcte imbricatis erectis subulatis exterioribus latioribus nunc basin versus spinosis interioribus longioribus apice ciliatis, perianthiis sericeis, stylo basi glabro, stigmate parvo oblongo obtuso.

DRYANDRA carduacea. *Lindl. Swan River Bot. p.* xxxiii. *Meissn. in Pl. Preiss. p.* 591.

β. angustifolia; foliis angustioribus. TAB. NOSTR. 4317.

A Swan River species of *Dryandra,* discovered by Mr. Drummond, and reared in the Royal Gardens of Kew from seeds sent by that indefatigable and most successful botanist. Our living plants in the Proteaceous House only differ from dried ones in having narrower leaves. It flowers in the spring months.

DESCR. Our *Plants* are three feet high, erect, much branched; the branches terete, the young ones downy. *Leaves* scattered, rather distant, sessile, lanceolate, in our variety linear-lanceolate, spreading and recurved, harsh and rigid, remotely sinuato-dentate, the teeth broad, decurrent, tipped with a sharp spine or mucro, and the leaf terminated by the same: the base is sometimes entire, sometimes almost pinnatifid with rather long spinous teeth: the upper surface is indistinctly veined, dark green, glabrous, the underside clothed with compact white down. The *capitula* terminate short branches, and are surrounded, as it were, by a rosule of spreading leaves. *Involucre* of many closely-imbricated, mostly subulate scales, the outer ones shorter and broader, and sometimes spinous at the margin; the inner ones longer and narrower and ciliated at the tips. *Florets* numerous, the segments of the perianth linear-spathulate, clothed with yellowish silky hairs. *Anthers* sunk in the hollow of the spathulate apex. *Style* longer than the flower, tipped with a rather small cylindrical glabrous *stigma.*

Fig. 1. Floret:—*magnified.*

4318.

Fitch del. et lith.

Reeve imp.

TAB. 4318.

SALVIA LEUCANTHA.

White-flowered Salvia.

Nat. Ord. LABIATÆ.—DECANDRIA MONOGYNIA.

Gen. Char. Calyx bilabiatus, labio superiore integro v. tridentato, inferiore bilobo. *Corolla* bilabiata, labio superiore erecto fornicato v. falcato, inferiore patente trifido. *Stamina* fertilia 2, sub labio superiore ascendentia. *Filamenta* brevissima, tubo inclusa. *Antheræ* dimidiatæ; connectivo elongato filiformi incurvo, postice sæpius clavato, rarius antheræ loculum alterum gerente. *Stylus* apice bifidus, lobo superiore sæpius breviore. *Achenia* sicca. *Benth.*

SALVIA *leucantha*; fruticosa, foliis breviter petiolatis anguste oblongo-lanceolatis acutis crenato-serratis supra rugosis nudiusculis subtus albo-lanatis, racemo elongato, verticillastris multifloris infimis remotis, calycibus subsessilibus ovatis pulcherrime dense violaceo-lanatis, labio superiore integro dentibusque labii inferioris ovatis acutis, corollis calyce duplo longioribus albis lanatis tubo exserto ampliato subventricoso, labiis abbreviatis superiore erecto integro inferioris lobis lateralibus rotundatis medio emarginato, connectivo postice lineari-dilatatis deflexis connatis, stylo barbato.

SALVIA leucantha. *Cavan. Ic. v.* 1. p. 16. t. 24. *Benth. Lab. p.* 275. *Spreng. Syst. Veget. v.* 1. p. 58.

This rare and remarkable *Salvia* possesses in its numerous flowers, in the rich violet or lavender coloured tomentum of the calyx, and the pure white of the corollas, a beauty which cannot well be represented on paper. It is a native of Mexico, and has now been first introduced to the Greenhouse of this country, from a garden at Nice, by Lady Smirke, Great Stanmore, Middlesex; in whose collection it flowered in June, 1847.

DESCR. *Plant* a foot and a half to two feet high: *branches* rather obtusely four-angled, elongated, woolly, chiefly while young. *Leaves* narrow, oblong-lanceolate, on short *petioles*, acute, rugose and almost glabrous, dark green above, beneath clothed with greenish white woolly down. *Spike* or *raceme* very much elongated: the *rachis* clothed with violet-coloured wool. *Pseudo-whorls* rather distant below, naked or subtended by subulate deciduous bracteas. *Flowers* six to eight or more in a whorl, crowded, nearly sessile. *Calyx* ovato-cylindrical, clothed with dense violet or lavender-coloured wool, paler and almost white beneath; upper *lip* entire: lower, in three short, ovate segments. *Corolla* about twice the length of the calyx, white and woolly, tube (the exserted portion) thick, curved upwards, with a contraction on the underside below the mouth: *limb* bifid: *lips* short, upper one erect, entire, helmet-shaped, covering the anthers; lower one three-lobed; lateral lobes almost obsolete, rounded; intermediate one short, emarginate. *Stamens* included, the posterior portions of the *connectivum* linear-dilatate, deflexed and connate. Below the two fertile stamens are two very minute abortive ones. *Style* included, clavate, bearded above. *Stigma* bifid; segments subulate, unequal.

Fig. 1. Flower. 2. Corolla laid open. 3. Pistil:—*magnified*.

4519.

Fitch. del. et lith.

Reeve imp.

TAB 4319

PENTSTEMON GORDONI.

Mr. Gordon's Pentstemon.

Nat. Ord. SCROPHULARINEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. *Cal.* 5-partitus. *Cor.* ventricoso-tubulosa, limbi labio superiore nunc basi concavo apice bilobo, nunc usque ad basin bipartito, rarius elongato emarginato; inferiore patente trifido basi intus barbato v. nudo. *Stamina* fertilia basi declinata, apice adscendentia; *antheræ* variæ. *Stamen* quinti filamenti sterile subulatum, apice sæpe dilatatum barbatum v. nudum, cæteris æquilongum vel vix dimidio brevius. *Stylus* apice capitato-stigmatosus. *Capsula* septicide bivalvis, valvulis integris bifidisve. *Semina* numerosa, immarginata, nunc ovoideo-triquetra incurva, nunc apice truncata angulis acutis.—Herbæ *Americæ borealis, basi perennes v. fruticosæ, ramosæ, ramis floriferis sæpius erectis simplicibus, rarius diffusis ramosis.* Folia *opposita, radicalia et infima petiolata, gradatim in floralia amplexicaulia decrescentia.* Pedunculi *dichotome pluriflori ad ramificationes bracteati, in* paniculam *seu* thyrsum *terminalem basi sæpius foliatum dispositi, rarius uniflori sub flore oppositi bibracteolati et articulati in* racemum *simplicem dispositi.* Corollæ *speciosæ, rubræ violaceæ cæruleæ albidæ v. rarius ochroleucæ. Benth.*

PENTSTEMON *Gordoni*; elatus, viridis, foliis radicalibus oblongo-spathulatis petiolatis, caulinis lato-lanceolatis sessilibus subamplexicaulibus integerrimis, pedunculis plurifloris axillaribus paniculam spicatam foliosam formantibus, sepalis parvis ovatis apiculatis imbricatis margine membranaceis, corollæ cæruleæ tubo superne ampliato, limbi bilabiati lobis inæqualibus, antheris filamentoque sterili hirsutis.

For the opportunity of figuring this charming species of *Pentstemon* I am indebted to Edward Leeds, Esq., of Manchester, who raised it from seeds given him by Mr. Shepherd of the Botanic Gardens, Liverpool, and which had been collected by Mr. Gordon in the valley of the Platte River, on the east side of the Rocky Mountains. I possess native specimens from the same traveller, gathered in the same locality, and also from Mr. Geyer, collected in the "Upper Platte", on slate hills near the junction of the Horse and Laramie Rivers. In many respects it approaches the *Pentstemon speciosus,* an inhabitant exclusively of the Oregon territory, west of the Rocky Mountains; but that has much narrower leaves, a less leafy panicle, deeper coloured flowers, a larger calyx, and, above all, the anthers and sterile filaments glabrous. The present species seems to be quite hardy, but, Mr. Leeds observes, is impatient of too much moisture, and it should be kept quite dry from November until February. It flowers in June, when the large sky-blue flowers render the plant a very beautiful object.

DESCR. *Plant* varying from 8–10 inches to a foot or a foot and a half high under cultivation, glabrous. *Stem* erect, herbaceous, terete, tinged with purple. *Root-leaves* spathulate, entire, those of the stem broadly lanceolate, sessile, subamplexicaul, also entire, acuminate; the upper ones gradually becoming *bracteas*. The axils of the leaves of the upper half or more of the plant bear many-flowered *peduncles*, the whole forming a leafy elongated *panicle*. *Flowers* large, handsome, a rich amathystine blue. *Calyx* very small in proportion to the size of the flowers; their segments ovate, subaristato-acuminate. *Tube* of the *corolla* infundibuliform, ventricose above: *limb* two-lipped; upper cut into two short, erect lobes; lower, into three reflexed, deeper ones, of which the middle is the smallest and most reflexed. *Sterile filament* bearded at the apex on the upper side.

Fig. 1. Root-leaf; and 2, lower stem and leaves:—*natural size*. 3. Stamens. 4. Pistil:—*magnified*.

Fitch, del. et lith.

Reeve imp.

TAB. 4320.

ÆSCHYNANTHUS SPECIOSUS.

Showy Æschynanthus.

Nat. Ord. CYRTANDRACEÆ.—DIDYNAMIA GYMNOSPERMIA.

Gen Char. (*Vide supra,* TAB. 4236.)

ÆSCHYNANTHUS *speciosus*; ramis junioribus subtetragonis, foliis oppositis v. ternatis supremis (floriferis) verticillatis ovato-lanceolatis carnosis obsolete serratis acuminatis, floribus terminalibus numerosis fasciculatis puberulis, pedunculis erectis unifloris, calycis 5-partiti laciniis lineari-subulatis erectis appressis, corollæ tubo longissimo clavato superne curvato dorso convexo subtus concavo-canaliculato, ore obliquo 4-lobo lobis patentibus rotundatis superiore bifido, filamentis styloque exsertis.

This, in our opinion at least, was the most charming of the many fine plants exhibited at the Regent's Park Garden Show in May, 1847, and is unquestionably the most beautiful species, yet known to us, of a genus eminent for the rich colouring of its blossoms. Judging, however, from the dried specimens of another kind (*Æsch. longiflorus*) which has yet flowered but imperfectly with Messrs. Veitch and Son, we shall soon have the opportunity of figuring one which will vie with the present, if it does not exceed it, in the size of the flowers and in depth of colouring. To the two species in question, the characteristic given by Blume of *Æ. longiflorus* is almost equally applicable: but the term "folia acuminatissima", accords better with the plant last mentioned than with that now before us. Mr. Thos. Lobb, from whom the seeds were received by Messrs. Veitch and Son, detected this plant, in Java, on Mount Asapan near Bantam, attached to the trunks of forest trees. It requires the same treatment as tropical Orchideous plants.

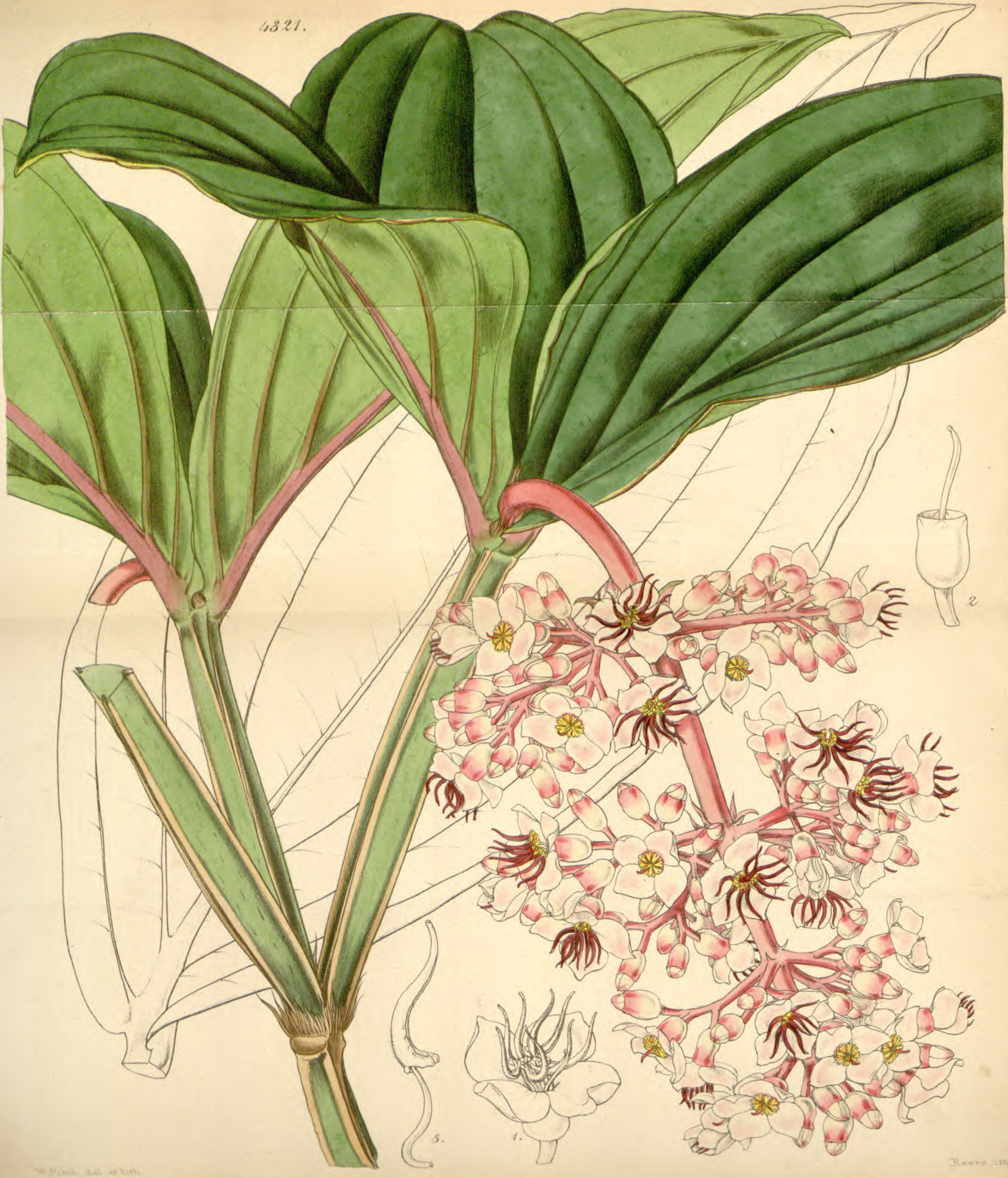
DESCR. *Stems* about two feet long, according to Mr. Lobb; the lower part woody: the upper and young *branches* subtetragonous and herbaceous. *Leaves* opposite or ternate, mostly nearly sessile, the uppermost ones beneath the flowers in a *whorl* of four to six or eight; the form is between ovate and lanceolate, acuminate, the texture very fleshy, the margin obscurely serrated.

AUGUST 1ST, 1847.

Flowers in terminal fascicles of from six to ten and even twenty, large, handsome, showy, slightly pubescent. *Peduncle* erect, short, single-flowered. *Calyx* cut to the base in five deep almost subulate, erect segments. *Corolla* between three and four inches long, full orange, with the extremity scarlet: the tube clavate, curved downward at the extremity, and there convex at the back, concave or canaliculate beneath (within glandular): the mouth oblique, four-lobed, the lobes patent, rounded, the upper one bifid: each lobe bears a lunulate, black line, forming the boundary between the orange and red colour. *Stamen* and *style* exserted. *Ovary* linear, inserted in a fleshy gland or cup. *Stigma* transversely grooved.

Fig. 1. Pistil:—*magnified.*

4321.



W. Fitch, del. et lith.

Reeve imp.

TAB. 4321.

MEDINILLA SPECIOSA.

Showy Medinilla.

Nat. Ord. MELASTOMACEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. Calycis tubus obovatus ecostatus, limbus cylindricus tubo continuus exacte truncatus persistens. *Petala* 4 ovata obtusa subcoriacea. *Stamina* 8 æqualia, antheris elongatis acutis uniporosis basi obtuse biauriculatis. *Ovarium* superne truncatum. *Stylus* filiformis. *Stigma* punctum pruinosum. *Capsula* baccata lagenaria nempe globosa calycis tubo coronata 4-locularis. *Semina* ovoidea lævia.—Frutex *glaber*. Ramuli *tetragoni*. Folia 3-4 *verticillata! petiolata ovalia mucronata triplinervia integerrima.* Cymæ 3–5-*floræ axillares, pedunculo petiolum vix superante.* Flores *albo-rosei. DC.*

MEDINILLA *speciosa*; ramulis alato-tetrahedris, foliis subsessilibus verticillato-(ternis)-quaternisque raro oppositis ovali-oblongis utrinsecus attenuatis basive obtusis 7–9-nerviis (raro quintuplinerviis), paniculis terminalibus axillaribusque nutantibus, floribus 6–10-andris. *Bl.*

MEDINILLA speciosa. *Bl. in Flora, oder Bot. Zeit. v.* 14. *p.* 515. *Walpers, Repert. v.* 2. *p.* 142.

MELASTOMA eximium. *Bl. Bijdr. p.* 1072. (*non Jack*).

M. speciosa. *Reinw. in Bl.*

The genus *Medinilla,* remarkable for the beauty of the foliage, and the delicacy of the flowers, was established by Gaudichaud, in the Botany of Freycinet's Voyage, in honour of Don José de Medinilla y Pineda, Governor of the Marianne Islands, in which group the first species (*M. rosea*) was discovered. Blume has since increased the number of species very considerably, and no less than twenty five stand recorded by Walpers. *M. speciosa,* as its name would imply, is among the most beautiful, and perhaps exceeds them all in the fine panicle of delicate rose-coloured flowers, gracefully drooping from among the rich green and ample foliage. It is an inhabitant of Java, and is among the treasures of that island sent home to Messrs. Veitch and Son by Mr. Thos. Lobb. The noble flowering specimen from which our drawing is made, was exhibited at the Chiswick Horticultural fête in July, 1847. The species is also n. 836 of Mr. Cuming's specimens from the Philippine Islands.

DESCR. A *shrub* about four feet and a half high in the present instance, erect, branched: the *branches* di- or tri-chotomous, tri- or tetragonous, the angles winged, glabrous as is the whole plant. *Leaves* in our plant rarely opposite, mostly in whorls of from three to four, large, handsome, nearly sessile, oval, or oval-oblong, often waved on the surface, usually obtuse at the base, acuminate at the point, quite entire, five- or seven-nerved, the *nerves* beneath and often the margin red. Where the leaves have fallen away a circle of harsh wiry hairs surrounds the stem, especially at the setting on of the branches. *Panicle* terminal, branched almost to the base, and so dense as to form a *thrysus* a span long, drooping, main peduncle and branches red: the secondary branches in whorls: ultimate *pedicels* short. *Calyx* urceolate, pale red, truncate, deepest coloured towards the margin. *Petals* four to five, ovate, acute, spreading, delicate rose. *Stamens* eight to ten: *filaments* subulate: *anther* longer than the filament, curved, subulate, with two blunt anterior horns at the base and a short spur there behind. *Style* filiform, shorter than the stamens, curved.

Fig. 1. Flower. 2. Calyx and pistil. 3. Stamen:—*magnified.*

4322.

Fitch del et lith.

Reeve imp.

TAB. 4322.

GARDENIA LONGISTYLA.

Long-styled Gardenia.

Nat. Ord. RUBIACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4185.)

GARDENIA *longistyla*; inermis fruticosa, foliis ovalibus apiculatis pubescenti-villosis, floribus terminalibus fasciculatis, calycis pubescentis tubo cylindraceo, limbi laciniis subulatis erectis, corollæ hypocrateriformis tubo longissime exserto, stigmate magno globoso didymo.

RANDIA longistyla. *De Cand. Prodr. v.* 4. *p.* 388.

Another beautiful *Gardenia*, as I consider it to be, rather than a *Randia*, from tropical western Africa: for the introduction of which our stoves are indebted to Mr. Whitfield. For the fine flowering specimen we are obliged to Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, in whose houses its cluster of blossoms was produced in June, 1847, for the first time, we believe, in this country. It is a handsome and most distinctly marked species, with long flowers and a style twice the length of the corollas, terminated by a large globose stigma. It requires, we need hardly say, the heat of the stove for its successful cultivation, and does not seem shy of flowering.

DESCR. This appears to form a large *shrub*, with terete, brown *branches*, the young ones downy. *Leaves* opposite, oval, of a rather soft and membranous texture, hairy on both sides (especially beneath) and at the margin, wavy, apiculate, on rather short petioles. *Flowers* terminal, and there forming a large cluster or fascicle, inclining to one side. *Peduncles* short. *Calyx* downy: the *tube* adnate with the ovary, cylindrical: the *limb* of five, erect, subulate *teeth*. *Corolla* rather large, hypocrateriform: the *tube* about two inches or more long, cylindrical, green: the *limb* of five, oval, spreading *segments*, greenish without, white within. *Anthers* sessile, linear, inserted at the mouth of the tube. *Style* peculiarly long and not slender, twice the length of the tube of the corolla. *Stigma* very large inclined, globose, didymous, the lobes striated.

Fig. 1. Calyx and pistil:—*magnified.*

4323.

Fitch, del. et lith.

Reeve, imp.

TAB. 4323.

TROPÆOLUM SPECIOSUM.

Showy Indian-Cress.

Nat. Ord. TROPÆOLEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. *Calyx* 5-partitus, lobo superiore calcarato. *Petala* 5 inæqualia, 3 inferiora minora aut evanida. *Stamina* 8 ab ipsa basi libera. *Carpella* 3 suberosa reniformia indehiscentia. *Semina* magna exalbuminosa. *Embryo* magnus; cotyledonibus 2 rectis crassis. *DC.*

TROPÆOLUM *speciosum*; volubile, foliis subpeltatis sex-foliolatis, foliolis oblongo-obovatis obtusis brevi-petiolatis, subtus caule stipulisque tri- 6-partitis pilosiusculis, pedunculis folio 3-plo longioribus, petalis cordatis bilobis stipitatis calycem longe calcaratum superantibus, superioribus duplo minoribus obcordatis cuneato-attenuatis.

TROPÆOLUM speciosum. *Endl. et Poepp. Gen. et Sp. Pl. Chil. et Peruv. v.* 1. *p.* 22. *t.* 35. *Walp. Repert. Bot. v.* 1. *p.* 466.

This is a charming addition to our species of the handsome genus *Tropæolum*, a little known one to botanists, imported by Messrs. Veitch and Sons of Exeter, through the intervention of their excellent collector, Mr. W. Lobb. Being a native of Chiloe, no wonder it bears our climate through all the summer months; but whether it will endure the winter in the open air in England remains to be ascertained. Poeppig discovered the species in the subandine regions of South Chili and in the province of Antuco. It will certainly prove equally hardy with and more ornamental than most of our *Tropæola*. In Messrs. Veitch's Garden at Exeter it produced its richly coloured blossoms in June, 1847: the plant was soon after exhibited at the Chiswick Horticultural show.

DESCR. *Stems* many feet long, slender, twining, herbaceous, branched. *Leaves* alternate, on short wavy *petioles*, subpeltate, cut to the base into six, obovato-oblong, very obtuse *leaflets*, green, the younger ones tinged with red. *Stipules* small, divided much in the same way as the lamina of the leaf, into three to six, narrow, almost linear *segments*. *Peduncles* one-flowered, axillary, solitary, flexuose, almost cirrhose, red, twice or thrice

as long as the petioles and leaves. *Calyx* of five, deep, ovato-acuminate *segments,* the three upper ones prolonged behind into a large and long, attenuated, curved *spur.* *Petals* five, longer than the calyx-segments, two upper ones small, obcordato-cuneate, attenuated, three lower ones more than twice as large, cordate, two-lobed on a longer slender claw or stipes: all rich vermillion red, yellowish towards the claw. *Stamens* eight.

Fig. 1. Flower deprived of petals:—*magnified.*

4326.

Fitch, del. et lith.

Reeve imp

TAB. 4324.

LISIANTHUS ACUTANGULUS

Sharp-angled Lisianthus.

Nat. Ord. GENTIANEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx 5-partitus v. 5-fidus, segmentis imbricatis exalatis, concavis v. planiusculis. *Corolla* infundibuliformis v. hypocraterimorpha, nuda, tubo supra fundum ampliato, fauce sæpius cum limbo 5-partito confluente. *Stamina* 5, corollæ tubo inferne inserto, filamentis elongatis sæpius inæqualibus. *Antheræ* incumbentes, rarius erectæ, plerumque demum recurvæ, connectivo sæpius in apiculum producto. *Ovarium* annulo basilari destitutum, valvulis introflexis biloculare, ovulis angulo centrali utrinque insertis. *Stylus* distinctus, persistens, stigmate bilamellato, lamellis subrotundis v. angustioribus. *Capsula* bivalvis septicide bilocularis, placentis margini interno valvarum insertis simplicibus v. duplicibus, loculis approximatis demum sejunctis et rima interna deorsum dehiscentibus. *Semina* placentis immersa.—Herbæ *v. frutices* Americæ tropicæ, cyma *laxe dichotoma,* floribus *sæpe pulchre coloratis. Griseb.*

LISIANTHUS (Chelonanthus) *acutangulus*; caule elato subsimplici tetragono angulis subulatis, foliis ovatis penninerviis basi petiolatis superioribus præcipue remotis sessilibus 3–5-nerviis, panicula terminali laxa dichotoma, floribus secundis racemosis, pedicellis brevibus, calyce hemisphærico 5-lobo lobis ovato-rotundatis obtusis, corollæ viridis late infundibuliformis campanulatæ basi contractæ inde sursum curvatæ ore obliquo 5-lobo lobis ovatis demum revolutis, staminibus inclusis declinatis inæqualibus, filamentis basi dilatatis, stylo corollæ longitudine, capsula elliptica stylo acuminata calyce 3-plo longiore.

LISIANTHUS acutangulus, *Ruiz, et Pav. Fl. Per. v.* 2. *p.* 14. *t.* 122 *a (excl. the fruit). Spreng. Syst. Veg. v.* 1. *p.* 586.

L. trifidus. *H.B.K. Nov. Gen. Am. v.* 3. *p.* 142. *Griseb. Gent. p.* 185. *et in De Cand. Prodr.*

L. tetragonus. *Benth. Plant. Hartweg.* n. 496.

There cannot be the smallest doubt of this being the *L. acutangulus* of Ruiz and Pavon. The figure is excellent, save that the large fruit, apparently belonging to *L. revolutus* of the same writers is added gratuitously. Those authors found the *L. acutangulus* in Chinchoa of Peru, in mountain districts; Mathews gathered it at Casapo (n. 2096); Humboldt and Bonpland in New Grenada, between Maraquita and Santanna; Moritz at Merida and in the province of Truxillo; Purdie on the Sierra Nivada, Sierra

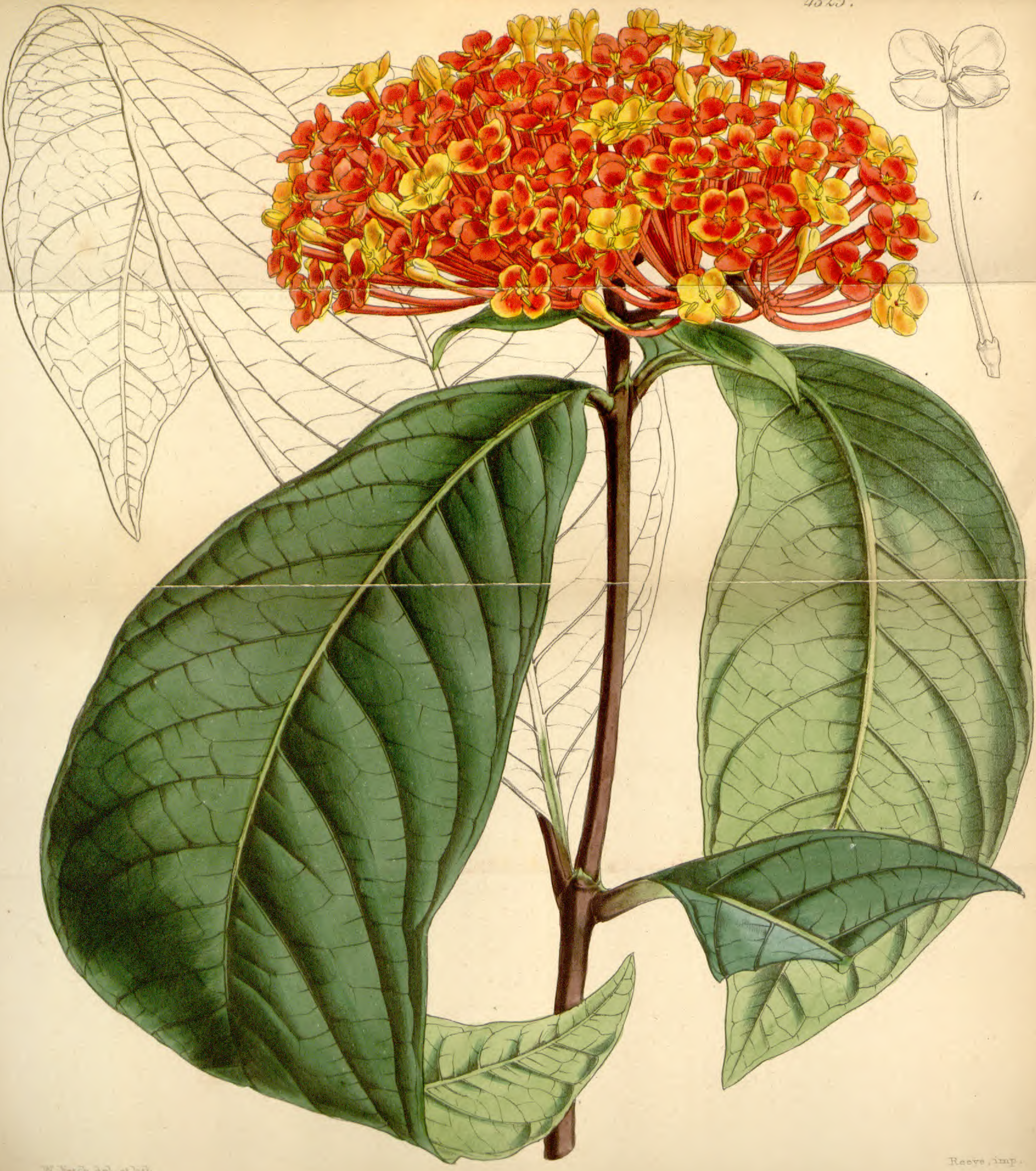
SEPTEMBER 1ST, 1847.

Nigra, and other mountains about Santa Martha; Mr. Hartweg also in Colombia; Mr. Skinner in Guatemala (n. 1240); at Talea in Mexico, *Hartweg* (n. 496). From seeds sent by Mr. Purdie our plants were raised in the Royal Gardens of Kew in a warm stove, and kept in a Greenhouse during the period of flowering, the summer months. The species appears to be biennial, and is remarkable for the unusually green hue of the flowers.

DESCR. *Stem* erect, two to three feet or more high, nearly simple, till it forms the panicle, tetragonous, the angles very sharp, slightly winged. *Leaves* rather large, opposite, ovate, acute, the lower ones on short petioles, penninerved, the uppermost ones sessile, shorter and broader, three- to five-nerved, the upper pair very distant from the rest. *Panicle* lax, dichotomous, its *branches* terete. *Flowers* green, in secund *racemes*, on short bracteated pedicels. *Calyx* small, with five rather gibbous, ovate, obtuse segments. *Corolla* rather campanulate than infundibuliform, the base contracted and thence curved upwards: *mouth* oblique, *limb* of five ovate, acute segments, soon revolute, at length withering and closing over the mouth, while the rest of the corolla is green. *Stamens* and *style* shorter than the corolla. *Ovary* inserted on a large gland or torus.

Fig. 1. Stamens. 2. Pistil:—*magnified.*

4325.



W. Fitch, del. et lith.

Reeve, imp.

TAB. 4325.

IXORA GRIFFITHII.

Mr. Griffith's Ixora.

Nat. Ord. RUBIACEÆ.—TETRANDRIA MONOGYNIA.

Cal. tubus ovatus, *limbus* parvus, 4-dentatus. *Corolla* hypocraterimorpha, *tubo* gracili tereti lobis longiore, *limbo* 4-partito patente. *Antheræ* 4 ad faucem subsessiles. *Stylus* tubo corollæ æqualis aut paulo longior (lobis nempe corollinis brevior) apice bifidus, stigmatis cruribus divergentibus aut revolutis. *Bacca* drupacea calyce persistente coronata subglobosa bilocularis. *Pyrenæ* chartaceæ intus planæ aut concavæ dorso gibbæ monospermæ. *Albumen* cartilagineum. *Embryo* dorsalis erectus incurvus, cotyl. foliaceis, radicula longa.—Frutices *interdum arborescentes, ex Asia, rarius ex Africa æquinoctiali.* Folia *opposita.* Stipulæ *basi latæ apice acutæ aut in aristam setaceam desinentes.* Corymbi *terminales sæpius trichotomi.* Flores *coccinei rosei flammei aut albidi sæpe fragrantes. DC.*

IXORA *Griffithii*; glabra, foliis amplis oblongo-ovatis acuminatis basi acutis brevi-petiolatis reticulatim venosis, stipulis brevibus latis acuminatis, cyma ampla densa composita, calyce parvo brevi obtuse 4-dentato, corollæ tubo elongato gracili, limbi lobis rotundatis obtusissimis patentibus, antheris lineari-subulatis horizontali-patentibus, stylo paulo exserto stigmatis ramis brevissimis.

IXORA Griffithii. *Hook. Herb.*

The ample foliage, the large compact cyme of very rich yellow and orange-coloured flowers, with the long slender tube of the corolla and the almost orbicular segments, together with the blunt and short-toothed calyx, distinguish this from the numerous species hitherto known to us of the present genus. It is from the collection of Messrs. Lucombe, Pince, and Co., Exeter Nursery, and was by them exhibited at the Regent's Park Garden, in July, 1847, when the first prize being awarded to it, as the best new plant, it could not fail to be much noticed. It was introduced from Singapore by the son of Mr. Low, of the Clapton Nursery, and has been, we believe, disposed of by him under the unpublished and scarcely appropriate name of *I. hydrangeæformis.* Its present name serves to commemorate its first discoverer, the late Mr. Griffith; from whom I possess specimens gathered at Mergui. It is a really noble species and will prove invaluable to our stoves, where it requires the same treatment as our favourites of the genus, *I. coccinea* and *striata*: to both of which it is superior in the size of the inflorescence and the large leaves, some of which are a foot in length.

DESCR. This seems to form a large *shrub* in its native country, branched: the *branches* terete, rich brown. *Leaves* among the largest of the genus, oblong-ovate, acuminate, somewhat cuneate at the base, tapering into a short stout *petiole*, penninerved, with numerous transverse *veinlets*, glabrous, as is every part of the plant. *Stipules* broad, short, acute. *Cyme* large, broad, nearly flat at the top, compound, with innumerable richly coloured *flowers*, and subtended by two small leaves. *Calyx* very small, with four short, blunt teeth. *Corolla* hypocrateriform, at first orange-yellow, then red-orange: the *tube* long, slender, the *limb* of four rotundate, very obtuse, spreading lobes. *Anthers* sessile, inserted at the mouth of the tube, and lying horizontally between the lobes. *Style* a little longer than the tube: *stigma* bifid.

Fig. 1. Flower:—*magnified*.

4326.

Fitch, del. et lith.

Reeve imp.

TAB. 4326.

ECHINOCACTUS CINNABARINUS.

Cinnabar-flowered Echinocactus.

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra,* TAB. 4124.)

ECHINOCACTUS *cinnabarinus*; atro-viridis globoso-depressus centro umbilicatus, tuberculis spiraliter dispositis basi tetragonis dorso verticaliter profunde carinatis, areolis parvis tomentosis ad summum apicem tuberculi sitis, aculeis rigidis mediocribus gracili-subulatis exterioribus radiatis subuniformibus, centrali erecta dimidio longiore, floribus solitariis sparsis, calycis viridis tubo lanato sepalis inferioribus minutis acutis superioribus spathulatis, petalis numerosis cinnabarinis.

A neat species in regard to the form and arrangement of its tubercles, and very striking when in flower, from the numerous rich cinnabar-coloured petals, which spread to a diameter of three inches. The species is among the many rare ones from Bolivia, purchased for the Royal Gardens from Mr. Bridges. It flowers in a cool greenhouse in July.

DESCR. Our specimens grow solitary and are globose, but depressed and umbilicated in the centre, six to seven inches in diameter and three or four inches in height. The surface is formed of copious dark green *mamillæ* or *tubercles,* closely packed and arranged in spiral oblique lines; they are four-sided at their base, and dilated at the back into a deep, vertical, rather short keel, on the top of which the *areola* is situated; this *areola* is small, woolly, and bears a cluster of about twelve, pale brown, narrow, subulate or acicular, but rather strong *aculei*: those of the circumference are nearly equal in length, and form a circle, $\frac{1}{2}$-$\frac{3}{4}$ of an inch long: the central one is longer and stronger than the rest, all slightly curved. *Flowers* scattered, solitary, large in proportion to the size of the plants. *Calyx* green; the *tube* short, woolly, the *folioles,* or *sepals,* of the lower portion, small, short, acute, the superior ones large, spathulate, and resembling the petals except in colour, and seeming gradually to pass into petals. *Petals* numerous, spathulate, obtuse, spreading, of a rich cinnabar colour. *Filaments* red. *Anthers* yellow. *Rays* of the *stigma* (in the few flowers I have seen) erect and approximate.

Fig. 1. Keel of a tubercle with a cluster of aculei:—*magnified.*

4327.

Fitch, del. et lith.

Reeve, imp.

TAB. 4327.

CHIRITA WALKERIÆ.

Mrs. Walker's Chirita.

Nat. Ord. DIDYMOCARPEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra,* TAB. 4182.)

CHIRITA *Walkeriæ*; caule suffruticoso ramoso, ramis teretibus villoso-tomentosis, foliis ternatim verticillatis petiolatis ovato-lanceolatis basi acutis apice acuminatis minute glanduloso-dentatis utrinque pubescenti-tomentosis, pedunculis axillaribus solitariis folio brevioribus 3–4-floris, lobis calycinis lineari-lanceolatis acuminatis tomentosis, corolla extus puberula.

CHIRITA Walkeriæ. *Gardner, in Mem. on Didymocarpeæ of Ceyl. p.* 26.

Mrs. General Walker detected this fine species of *Chirita* in Ceylon, in 1830, and her specimens are deposited in my Herbarium. It remained for Mr. Gardner, the able Director of the Botanic Garden, Peradenia, Ceylon, to send the seeds to us, in 1845, and to establish it as a new species, with a full and accurate character, in the work above quoted. In 1846 our plants blossomed, and proved the species to be well worthy of a place in every collection, from the beauty of the flowers and their continuing long in perfection. Indeed there is scarcely a month throughout the year that it does not produce blossoms. With bottom heat it becomes a luxuriant plant and it must always be considered an inhabitant of the stove.

DESCR. *Stem* shrubby but succulent, stout, branched, downy, especially the young shoots and branches, which are herbaceous. *Leaves* ternately whorled, soft and downy on both sides, ovato-lanceolate, acuminate, penninerved, acute at the base, the margins denticulate with glandular teeth. *Petioles* about an inch long, thick, succulent. *Peduncles* axillary, solitary, slender, bearing from two to three *flowers,* which are drooping, shorter than the leaf. *Calyx* half the length of the corolla, downy or tomentose, tube almost cylindrical, the teeth equal in length with the tube, linear-subulate, erect. *Corolla* twice as long as the calyx, between infundibuliform and campanulate: the *tube* downy, pale: the *limb* spreading, deep purple, two-lipped, wavy, the *upper lip* two-, the *lower* three-lobed, the *lobes* subrotund: within the mouth, below, is a deep yellow line. *Stamens* five, of which two are perfect, their lobed *anthers* cohering; two other are small, imperfect, with hairy abortive *anthers*; and one is the rudiment of a stamen. *Ovary* linear, inserted in a cup-shaped *gland* or *torus*. *Style* hairy. *Stigma* oblique. Young fruit narrow, siliquose, four to five inches long, curved.

Fig. 1. Calyx and pistil. 2. Base of the corolla, seen from within. 3. Pistil and hypogynous cup:—*magnified*.

4328.

Fitch, del et lith.

Reeve imp.

TAB. 4328.

ÆSCHYNANTHUS LONGIFLORUS.

Long-flowered Æschynanthus.

Nat. Ord. CYRTANDRACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4236.)

ÆSCHYNANTHUS *speciosus*; ramis pendulis subteretibus, foliis oppositis lato-lanceolatis acuminatissimis integerrimis, floribus erectis numerosis terminalibus fasciculatis, pedunculis unifloris, calycis 5-partiti laciniis lineari-subulatis erectis appressis, corollæ tubo longissimo clavato superne curvato dorso convexo subtus canaliculato, ore obliquo contracto 4-lobo lobis rotundatis erectis superiore bifido, filamentis longe styloque minus exsertis.

ÆSCHYNANTHUS longiflorus. *Blume, in De Cand. Prodr. v.* 9. *p.* 262.

LYSIONUTUS longiflorus. *Blume, Bijdr.* p. 766.

When describing the *Æschynanthus speciosus* (Bot. Mag. t. 4320), we gave our readers reason to expect that another species would soon be represented, which would vie in beauty with that eminently handsome plant; and we now keep our pledge. Closely as the two species are allied, they are unquestionably distinct; and the differences are equally apparent in the dried native specimens as in the living ones. Much of the beauty of *Æ. speciosus* is due to the varied colour (red and yellow) of the corolla; in the present, to the rich uniform puce of the entire flower. Here, the mouth of the corolla is much contracted, with the segments or lobes erect, the style scarcely exserted beyond the corolla, the stamens very much so:—in *Æ. speciosus* the style is very much exserted, the stamens scarcely so at all. Messrs. Veitch and Son, of Exeter, have equally the credit of introducing this as the one last mentioned, through their East Indian Collector, Mr. Thomas Lobb, from Java: it is probably derived from the locality mentioned by Blume, "mountain-woods, Province of Bantam." It flowered with Messrs. Veitch in August, 1847.

DESCR. *Stem* procumbent, or pendent from branches of trees, and said to be rooting, terete, or nearly so, the younger shoots green. *Leaves* opposite, broadly lanceolate, very acuminate, thick and fleshy, entire, penninerved. *Flowers* terminal, generally upon a pendent branch, and then they incline upwards and become erect, fascicled or subumbellate; eight or ten flowers or probably more are in a fascicle. *Peduncles* short, single-flowered. *Calyx* deeply cut, almost to the base, into five linear-subulate, erect teeth. *Corolla* in general shape much resembling that of *Æ. speciosus*, but of an uniform dark purple or puce colour; the inside of the mouth, which is contracted, yellow and surrounded by a band of black: the lobes erect, upper one bifid. *Stamens: filaments* very much exserted, and connected in pairs by the oblong anthers. *Style* much shorter than the stamens, scarcely exserted.

4329.

Fitch, del. et lith.

Reeve, imp.

TAB. 4329.

HIBISCUS GROSSULARIÆFOLIUS.

Gooseberry-leaved Hibiscus.

Nat. Ord. MALVACEÆ.—MONADELPHIA POLYANDRIA.

Gen. Char. *Calyx* cinctus involucello sæpius polyphyllo, rarius foliolis paucis aut inter se coalitis. *Petala* hinc non auriculata. *Stigmata* 5. *Carpella* in capsulam 5-locularem coalita, valvis intus medio septiferis, loculis polyspermis aut rarius monospermis. *DC.*

HIBISCUS (Bombicella) *grossulariæfolius*; fruticosus erectus pilis stellatis patentibus pubescens, foliis petiolatis cordatis 3–5-lobis, lobis obovatis obtusis sinuato-lobatis, pedunculis axillaribus solitariis unifloris, supra medium articulatis bracteatis, involucri monophylli 10–12-partiti laciniis lineari-subulatis, calycis laciniis lanceolato-acuminatis, stylo exserto, stigmate 5-radiato.

HIBISCUS grossulariæfolius. *Miquel, in Plant. Preiss. p.* 240.

I cannot assert with certainty that this is the *H. grossulariæfolius* of Miquel, for it does not in all respects accord with the description: neither in our recent or dried specimens can it be said of our plant, "totus *lutescenti*-stellato-tomentosus"; nor can the leaf-stalks or peduncles be considered "short", nor the involucre 8- (but 10–12-) fid; and the stigma is not capitate, but dilated and lobed. Still the general characteristics are so similar that the differences may be accounted for on the supposition that the able Miquel described from an imperfect dried specimen of Preiss. I run the risk of retaining the name, rather than load the system with needless synonyms. Australia does not seem eminently rich in species of *Hibiscus*; but some of them are eminently beautiful; and the present one is no exception. It was raised in the Royal Gardens of Kew from Swan-River seeds, sent by Mr. Drummond, and has this character to recommend it, that in the summer, if planted against a wall, it makes a beautiful open border plant, flowering frequently during the summer months.

DESCR. A *shrub* three to four feet high; *branches* terete, younger ones, leaves, and calyx (the latter more copiously)

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clothed with tufts of stellated patent hairs. *Leaves* on petioles nearly as long as themselves, cordate with a deep sinus at the base, three-, but more generally deeply five-lobed, the lobes obovate, obtuse or retuse and again lobed and serrated or toothed at the margin. *Stipules* subulate, deciduous. *Peduncles* longer than the leaves, terete, single-flowered, axillary, solitary, with a joint above the middle, and there bearing two or three small, subulate *bracteas*. *Involucre* cup-shaped, hemispherical, longitudinally ribbed, and cut into ten to twelve subulate teeth or segments. *Calyx* deeply 5-fid, twice as long as the involucre; the segments ovate, acuminate, ribbed. *Corolla* large handsome, rich blueish-purple, slightly downy in a broad line outside on each petal. *Petals* triangular, obovate, oblique; one angle rounded, the opposite one sharp and mucronate. *Column* of *stamens* elongated, free portions of the filaments spreading. *Style* longer than the tube, *stigma* dilated, with five obtuse rays. Young fruit elliptical, shorter than the calyx, stellato-pubescent.

4330.

Fitch, del. et lith.

Reeve, imp.

TAB 4330.

COLUMNEA CRASSIFOLIA.

Thick-leaved Columnea.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Calyx liber 5-partitus. *Corolla* tubulosa, rectiuscula, basi postice gibba, ringens, lobis superiore erecto fornicato inferiore trifido patente. *Stamina* 4 didynama, antheris connexis, quinti postici rudimentum. *Glandulæ* 1–5 circa basin ovarii. *Bacca* 1-locularis, placentis 2 parietalibus bilobis. *Semina* oblonga.—Frutices Americani *flexiles erecti aut scandentes.* Folia *opposita brevipetiolata crassiuscula subserrata, hirsuta v. pubescentia.* Pedunculi *axillares solitarii aut conferti.* Corollæ *coccineæ. DC.*

COLUMNEA *crassifolia*; caule suffruticoso-carnoso squamuloso-punctato radicante, foliis brevi-petiolatis erectis lineari-lanceolatis acuminatis carnosis subintegerrimis supra atro-viridibus glabris nitidis subtus flavo-rufescentibus pilosiusculis, floribus solitariis axillaribus, calycis glabri lobis lanceolatis acuminatis erectis subintegerrimis, corollis magnis coccineis hirsutissimis.

COLUMNEA crassifolia. *Hortulan.*

This is the largest-flowered and most beautiful of this beautiful genus, of which I regret that I know nothing more concerning its history than that it was sent to us by Mr. Makoy of Liège, under the name of *Columnea crassifolia*; which appellation being unexceptionable, I gladly adopt. It is probably a native of Mexico, and extremely different from any species hitherto described. It requires the heat of the stove, and is readily increased by cuttings, which are exceedingly tenacious of life; a specimen, under pressure for the Herbarium, continuing to push a green shoot at the extremity two months after being gathered.

DESCR. Our *plants* are scarcely a foot high and the *stems* are simple, disposed to spread and to throw out fibrous *roots* at the joints, terete, fleshy, suffruticose, scurfy with brown scales which give them a spotted appearance. *Leaves* four or five inches long, shortly petiolate, erect, narrow-lanceolate, acuminate, fleshy, nearly entire, dark glossy green and quite glabrous above, beneath paler yellowish-red and very slightly hairy. *Peduncles* axillary, short, thick, single-flowered: *flowers* erect, very large. *Calyx* nearly an inch long, brownish-green, cut almost to the

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base into five erect, lanceolate, acuminate, nearly entire *segments*. *Corolla* between three and four inches long, bright scarlet, shaggy with long red hair; *tube* curved; *limb* with the upper lip galeate, entire, the mouth very open, the lower *lip* having the two lateral segments short and appearing rather to belong to the upper than to the lower lip, the intermediate segment is deflexed. *Stamens* and *style* shorter than the corolla. *Ovary* with a shallow hypogynous ring, enlarging at the back into a conspicuous broad *gland*.

Fig. 1. Pistil and hypogynous cup. 2. Back view of the large gland:—*magnified*.

4331.

Fitch, del. et lith.

Reeve, imp.

TAB. 4331.

SIPHOCAMPYLOS GLANDULOSA.

Glandular Siphocampylos.

Nat. Ord. LOBELIACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra,* TAB. 4178.)

SIPHOCAMPYLOS *glandulosa*; ubique molliter pubescens, caule superne angulato herbaceo, foliis sublonge petiolatis cordato-rugosis duplicato-dentatis denticulis nigro-glandulosis, pedunculis axillaribus solitariis folio brevioribus unifloris infra medium bibracteatis, calycis tubo turbinato 10-sulcato, limbi lobis lanceolatis patentibus marginibus reflexis profunde glanduloso-serratis, corollæ (roseæ) nutantis curvatis tubo compresso 5-clavato lineis 5 elevatis limbi laciniis 5 oblongo-ovatis erecto-patentibus subæqualibus, staminibus styloque inclusis.

A handsome species of Pohl's genus *Siphocampylos,* from Bogotà, of which seeds were sent to Syon and to the Royal Gardens of Kew, by Mr. Purdie, in 1845. Our drawing was taken from a fine flowering specimen in the Greenhouse of His Grace the late Duke of Northumberland. It grows freely and flowers abundantly during the summer months.

DESCR. *Stems* herbaceous, yet apparently perennial, erect, two to three feet high, clothed with soft short down, as is every part of the plant. *Leaves* alternate, large, cordate, petiolate, wrinkled, deeply and doubly dentate, the teeth all terminated by black glands. *Petioles* an inch or more long, slender. *Peduncles* axillary, solitary, single-flowered, shorter than the leaf, downy or almost tomentose like the calyx. *Calyx* of five somewhat leafy, spreading, lanceolate *segments,* the margins reflexed, deeply glanduloso-serrate, tube turbinate, sulcate; *limb* of five almost equal, spreading, glanduloso-serrate *segments. Corolla* rose colour, downy, two or two and a half inches long, clavate, laterally compressed, contracted below the insertion of the stamens, and again dilated at the very base; *limb* of five nearly equal *segments,* of which the upper *lip* consists of two slightly incurved, the lower of three very slightly spreading segments, all ovato-lanceolate. *Stamens* scarcely protruded, inserted below

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the middle of the corolla. *Anthers* lead-colour, united into a tube, all hairy at the point and ciliated at their margins. *Stigma* of two nearly orbicular, spreading lips, downy within, the margins reflexed.

4332.

Fitch, del. et lith. Reeve, imp.

TAB. 4332.

ISOPOGON SPHÆROCEPHALUS.

Round-headed Isopogon.

Nat. Ord. PROTEACEÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. Perianthium quadrifidum, tubo gracili diutius persistente. *Squamæ* nullæ hypogynæ. *Stylus* totus deciduus. *Stigma* fusiforme v. cylindraceum. *Nux* sessilis, ventricosa, undique comosa.—Frutices *rigidi.* Folia *glabra, plana v. filiformia, divisa v. integerrima.* Capitula *terminalia, raro axillaria.* Flores *modo densissime imbricati,* strobilo *globoso; modo fastigiati, receptaculo communi planiusculo subinvolucrato, paleis deciduis congestis. Br.*

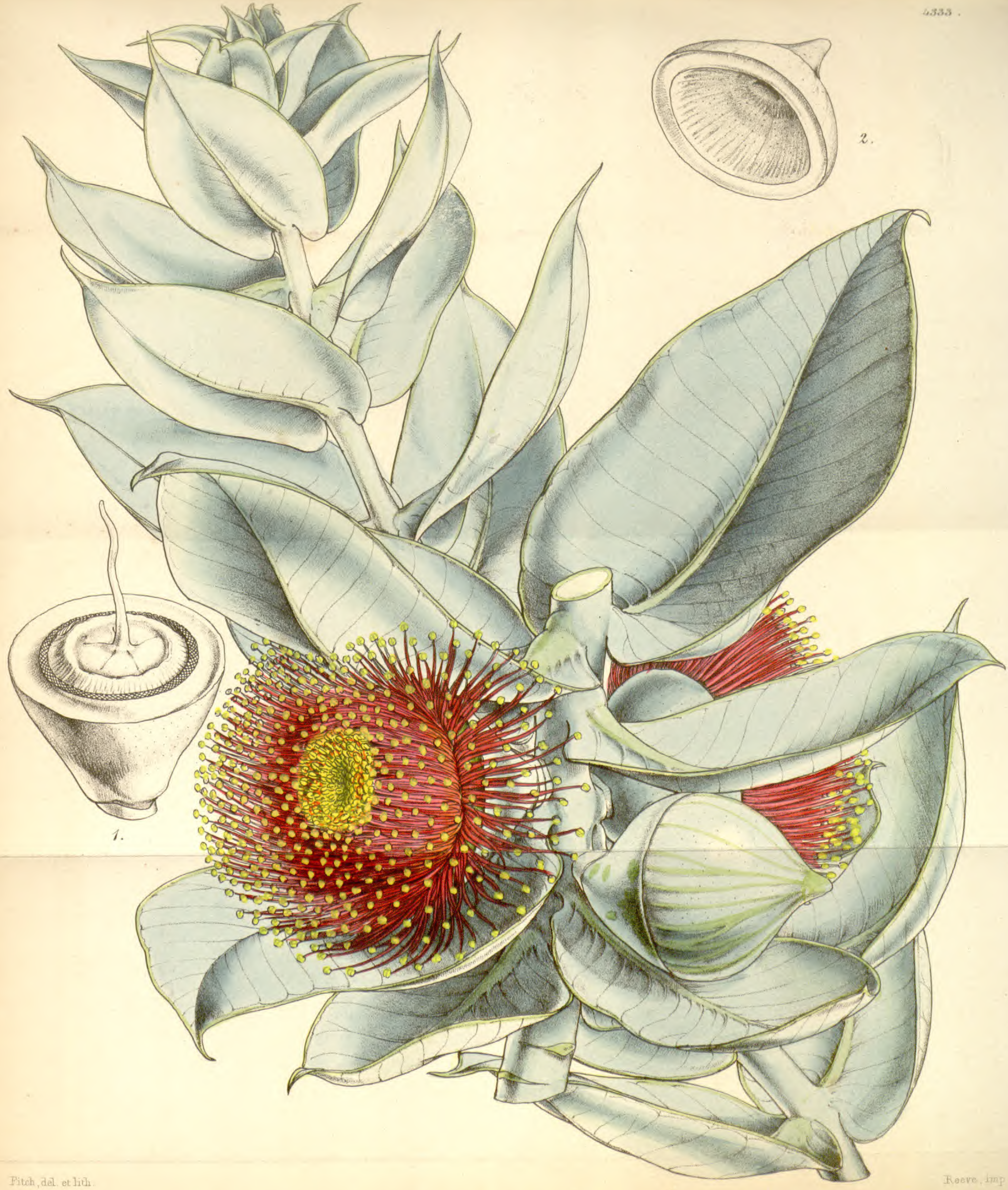
ISOPOGON *sphærocephalus*; ramis patenti-pilosis tomentosisque, foliis lineari-lanceolatis mucronulatis nervosis puberulis scabriusculis, strobilis terminalibus (rarius et axillaribus) sessilibus subglobosis, squamis ovatis acuminatis villosis, calycis tubo glabro lobis crispato-villosis, stigmate articulato, articulo inferiore breviore turbinato stuposo superiore subulato glabro apice subdilatato excavato. *Nees.*

ISOPOGON sphærocephalus. *Lindl. Swan Riv. Bot. p.* xxiv. *n.* 163. *Nees in Plant. Preis. p.* 508.

A free growing Greenhouse shrub, of which the seeds, from the Swan River, sent by Mr. James Drummond, were reared in the Royal Gardens of Kew. It there flowers in the spring months, and attains a height of three to four feet.

DESCR. A woody *shrub,* with stout, terete *branches,* the younger ones downy and clothed with rather long spreading hairs. *Leaves* scattered, three to four inches long, broad, linear or linear-lanceolate, broadest above the middle, obtuse, mucronate, sessile, downy or rather silky, especially at the margins, which are hence ciliated: the texture is harsh, rigid, rather dull green, with a costa and oblique parallel nerves, everywhere quite entire. Heads of *flowers* terminal, solitary or more frequently clustered, and then the lower heads are subtended by a leaf. *Bracteas* ovate, acute, concave, shaggy with hair. *Flowers* dense, yellow. *Tube* of the *perianth* slender, villous at the base, the rest glabrous: *laciniæ* spathulate, soon reflexed, externally very villous. *Stamens* lodged one in the hollow of each segment of the perianth. *Style* longer than the tube of the perianth, slender, glabrous. *Stigma* large, jointed; lower joint globose, villous, upper joint subulate, glabrous.

Fig. 1. Flower-bud and bractea. 2. Expanded flower:—*magnified.*



Fitch, del. et lith.

Reeve, imp

TAB. 4333.

EUCALYPTUS MACROCARPA.

Large-fruited Eucalyptus, or Gum-Tree.

Nat. Ord. MYRTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. Calycis tubus persistens obovatus aut globosus cupulæformis, *limbus* operculiformis integer basi circumscisse et regulariter dehiscens deciduus. *Petala* nulla. *Stamina*: *filamenta* numerosa libera. *Capsula* 4-locularis aut abortiv. 3-locularis apice dehiscens polysperma.—Arbores (Novæ Hollandiæ) *excelsæ.* Folia *integerrima coriacea sæpius alterna, rarius opposita, interdum in iisdem individuis varia, paucis exceptis glaberrima.* Pedunculi *axillares breves umbellam* 3–15-*floram gerentes.* Operculum *in nonnullis,* ex cl. Brown, *duplex, exterius calycinum, interius corollinum. DC.*

EUCALYPTUS *macrocarpa*; tota pulverulento-glauca, foliis oppositis elliptico-cordatis coriaceis acuminulatis, pedunculis axillaribus solitariis brevissimis unifloris, calycis magni crassissimi operculo conico-hemisphærico acuminato, capsula maxima depresso-hemisphærica marginata lignosa 4–5-valvi.

EUCALYPTUS macrocarpa. *Hook. Ic. Pl. v.* 5. *tab.* 405, 406, 407. *Lehm. Pl. Preiss.* p. 132.

It is truly said in the 'Icones Plantarum' above quoted, that "one of the finest among the many fine plants lately sent by Mr. Jas. Drummond from the Swan River Colony, is the present new species of *Eucalyptus.*" That was spoken of the dried specimen: with still greater truth does the remark apply to the living individual. Our specimen is about five feet high; and the large and copious foliage, covered everywhere with glaucous white powder, and the bright red flowers nestled among the leaves, form a very striking object. The colour of the flowers is due to the stamens alone; for petals (as in the genus) there are none, and the calyx falls off like the lid of a box. Drummond found it at "Guangan," an open sandy desert, commencing about eighty miles E.S.E of Freemantle and continuing for two hundred miles. This barren country is bordered by a considerable forest, consisting principally of two species of *Eucalyptus*, called by the aborigines "Urac" and "Morral": the latter is the plant now before us. The seed was raised at Kew in 1842, and our plant, when five feet high, in the summer of 1847, blossomed in great perfection.

DESCR. A *shrub*, everywhere covered with a glaucous-white, pulverulent substance; young *branches* four-sided. *Leaves* numerous, opposite, large, three to four inches long, elliptical-ovate or cordate, sessile and half embracing the stem, coriaceous, acuminulate, margined, penninerved, the nerves very patent, rather crowded, parallel. *Flowers* axillary, solitary, nearly sessile. *Calyx-tube* subhemispherical, but tapering: the free portion united into a hemispherical acuminate *lid*, which separates transversely from the very thick *tube*. *Stamens* exceedingly numerous. *Filaments* long, subulate, rich deep red; the central ones spreading. *Anthers* yellow. *Style* subulate. *Fruit* (see Ic. Pl. f. 407) very large, orbicular, a depressed hemisphere, very woody, opening in the middle by four to five valves.

Fig. 1. Calyx-tube adherent with the ovary. 2. Operculum :—*natural size.*

Fitch, del. et lith.
Reeve, imp.

TAB. 4334.

MALACHADENIA CLAVATA.

Club-stalked Malachadenia.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. Flos resupinatus. *Sepala* lateralia connata, apice reflexa libera, galeam formantia; dorsale cordatum acuminatum. *Petala* minima, squamæformia, rotundata. *Labellum* carnosum, margine revolutum, basi mucronatum, cum pede elongato columnæ sepalis lateralibus galeatis adnatæ articulatum. *Columna* antice bicirrhosa, basi longe producta, stigmate lineari-oblongo. *Anthera* bilocularis decidua. *Pollinia* 2, cereacea, sessilis, glandula molli, cubica, nuda.—Herba *repens*, pseudo-bulbis *monophyllis*, scapo *radicali*, floribus *carnosis galeatis. Lindl.*

MALACHADENIA *clavata.*

MALACHADENIA clavata. *Lindl. Bot. Reg.* 1839. *Misc. p.* 67. *n.* 110.

A Rio plant, in the collection of Mr. Bateman, where it bloomed first in 1839, (when Dr. Lindley described it as a new genus, *Malachadenia,* from the soft nature of the gland of the pollen-masses), and again in 1847, when we received from that gentleman the flowering specimen here represented. The author speaks of its place among *Vandeæ* as doubtful; but to me the plant appears, both in habit and structure of the flowers, so close to *Bolbophyllum,* that I do not see how it can be separated. The locality given would seem to militate against such an opinion, *Bolbophyllum* having for a long time been considered peculiar to the Old World, but *Bolbophyllum recurvum* is now announced by Dr. Lindley (in Bot. Reg. 1844, Miscel. p. 72) as a native of South America as well as of Sierra Leone. Be that as it may, the plant is a very singular one, though it has little beauty to recommend it, and Mr. Bateman remarks, "it is the only epiphytal Orchideous plant I know which emits a positive stench, and that too at all hours by night and day. In the stove it resembles the foulest carrion." It was first imported by Mr. Hooper of Lambeth.

DESCR. *Rhizoma* creeping, bulbiferous. *Pseudo-bulbs* oblong-ovate, solitary, curved, clothed with a membranous sheath, and terminated by a solitary, oblong, acute, veinless, coriaceo-carnose *leaf.* *Scape* radical, slender, twice as long as the leaves, articulated, sheathed at the joints, thickened upwards among the flowers (whence the specific name). *Flowers* five or six, spicate, green, richly spotted with brown, resupinate. *Bracteas* shorter than the flower. *Sepals* erecto-patent, very concave, acuminate, dorsal one the largest. *Petals* very minute, squamiform. *Lip* articulated on the produced base of the column, upper half ovate, reflexed. *Column* with two projecting cirrhi. *Pollen-masses* two, yellow, sessile on a soft gland.

Fig. 1. Flower deprived of the sepals. 2 and 3. Pollen-masses :—*magnified.*

Fitch, del. et lith.
Reeve imp.

TAB. 4335.

TRITONIA AUREA.

Golden Tritonia.

Nat. Ord. IRIDEÆ.—TRIANDRIA MONOGYNIA.

Gen. Char. Perianthium corollinum superum subcampanulatum v. tubulosum, limbo sex-fido regulari v. subbilabiato, laciniis basi callosis. *Stamina* 3, infra faucem perigonii inserta, subsecunda: *filamenta* filiformia: *antheræ* versatiles. *Ovarium* ovatum, teretiusculum, triloculare. *Ovula* plurima, in loculorum angulo centrali biseriata. *Stylus* filiformis. *Stigmata* 3, ligularia, angusta, complicata, integra v. breviter bifida. *Capsula* coriacea, subclavata, trigibba, trilocularis, loculicido-trivalvis. *Semina* plurima subglobosa.—Herbæ *Capenses*; rhizomate *bulboso-tuberoso*, foliis *collateralibus exsertis*, caule *junceo, tereti, gracili, simplici v. ramoso*, floribus *spicatis, sæpius resupinatis. Endl.* (*sub* Monbretiam.)

TRITONIA *aurea*; scapo ancipiti-compresso bialato folioso apice paniculato, foliis panicula brevioribus lineari-ensiformibus costatis striatis, bracteis spathisque integerrimis subherbaceis, perianthii toti aureo-crocei tubo limbo patentissimo subæquali paulo breviore laciniis oblongo-ovatis, staminibus laciniarum longitudine, capsula subglobosa abortu trisperma.

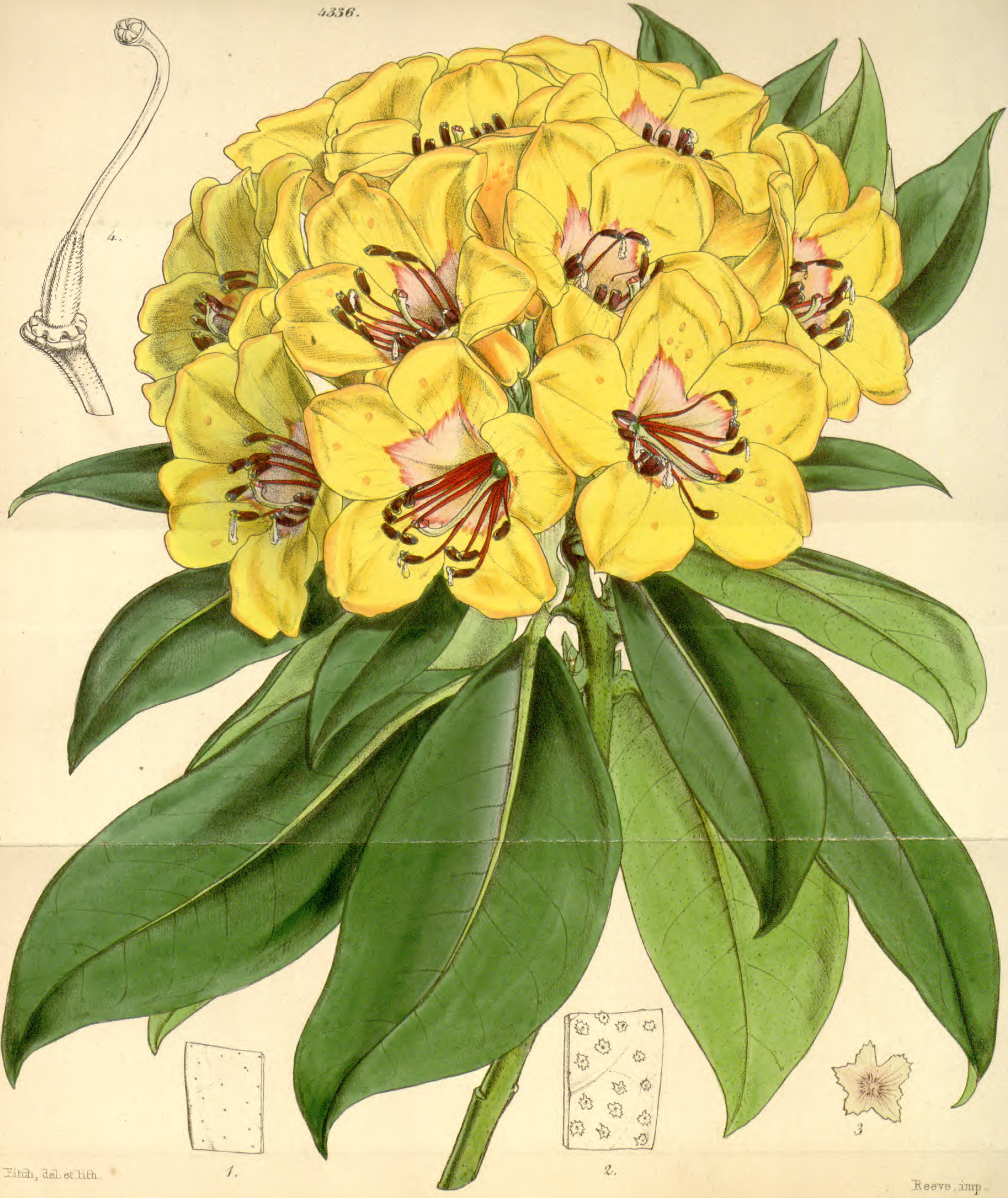
TRITONIA aurea. *Pappe, MS. in Hook. Herb. cum ic. et descr.*

I am indebted to Dr. Pappe, of Cape Town, for an excellent drawing by Mr. Villett, and dried specimens, obtained also by Mr. Villett, from the district of George, Cape of Good Hope, of this new species of *Tritonia*. Of all the genus this is the most beautiful, and, happily, it has been introduced to our gardens probably from the same source (Mr. Villett) by our friend Mr. James Backhouse, of the Nursery, York. It seems easy of cultivation and a profuse flowerer, remaining a long time in great beauty. A bed of it would be a far more striking object than the gaudy *Gladiolus psittacinus*; for the colour of the blossom is much more brilliant, and for such a purpose it will prove a great acquisition.

DESCR. *Bulb* rather large, subglobose, striated, brown, sending out offsets from clefts in the sides. *Scape* a foot and a half to two feet high, leafy below, naked or only bracteated, and panicled above, compressed, two-winged. *Leaves* distichous, long, but shorter than the scape, narrow, linear, ensiform, striated, but with a distinct central costa. *Flowers* sessile on the panicle. *Spatha* two-leaved; leaflets ovate, acute, almost mucronate, not scariose but subherbaceous, and more or less coloured. *Perianth* rich orange-red; *tube* about three quarters of an inch long, narrow, curved; *limb* very patent, subirregular, the segments oblong-obovate. *Stamens* and *style* much exserted and nearly equal in length, a little curved. *Anthers* linear, yellow. *Stigmas* thickened at the apex. *Capsule* subglobose, longer than the persistent spatha, three-lobed, three-celled: most of the *seeds* abortive, one generally ripening in each cell, globose, smooth.

Fig. 1. Capsule. 2. The same laid open.

4336.



Fitch, del. et lith.

Reeve, imp.

TAB. 4336.

RHODODENDRON JAVANICUM.

Javanese Rhododendron.

Nat. Ord. ERICACEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. Cal. 5-partitus. *Cor.* infundibuliformis rarius campanulata aut rotata, nunc regularis nunc plus minus irregularis semper 5-loba. *Stam.* 10 (rarius abortiv. 5–9) corollæ non adnata ante et inter lobos sita, sæpius declinata, exserta. *Antheræ* poris 2 terminalibus dehiscentes. *Capsula* 5-locularis, 5-valvis, aut 10-locul. 10-valvis, septicido-dehiscens. *Semina* axi columnari angulato adnata, compresso-scobiformia subulata.—Frutices *rarius* arbores. Folia *sempervirentia petiolata integerrima.* Flores *in corymbos terminales dispositi.* Alabastra *floralia squamosa.* Corollæ *conspicuæ albæ aut flavæ. DC.*

RHODODENDRON *Javanicum*; foliis ovalibus obovatisque subcoriaceis acutis basi attenuatis supra nudis subtus minute punctato-squamulosis, pedunculis glabris, calyce obsoleto, corolla infundibuliformi-campanulata, limbi laciniis obovato-rotundatis, ovario 5-loculari.

RHODODENDRON Javanicum. *Bennett, in Pl. Jav. Rar. p.* 85. *t.* 29. *De Cand. Prodr. v.* 7. *p.* 721.

VIREYA Javanica. *Blume, Bijdr. p.* 854.

On communicating this splendid plant to me for figuring in the Botanical Magazine, Messrs. Veitch and Sons, its possessors, remark that "it is certainly one of the finest things ever introduced to our gardens". And in this opinion we think all will agree who see the present representation, and more especially those who have the privilege of beholding, as we now do, the plant itself with its beautiful, glossy, bright green foliage and orange-coloured flowers (twelve on a bunch), here and there marked with red spots, and again spotted, as it were, with the dark black-purple coloured anthers, which lie generally five on each side towards the lower side of the mouth of the corolla. On a plant which previously flowered (equally sent from Java by Mr. Thos. Lobb), Mr. Veitch observes the flowers to be deeper coloured: again, Professor Blume mentions a citron-coloured variety, with smaller flowers. It is, as its name implies, an inhabitant of Java. Blume discovered it on the mountain

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Salak; Dr. Horsfield, "on the volcanic range extending through Java, in dense forests, at an elevation of 4,000 feet above the level of the sea." Hence we are not surprised to learn from Mr. Veitch that it succeeds well under the mere shelter of a Greenhouse, where, that able cultivator thinks, it may probably be brought to blossom all the year round.

Descr. A moderate sized *shrub*, with spreading *branches*. *Leaves* scattered, subcoriaceous, oblong-oval, or approaching to obovate, acute, tapering into a short *petiole*, naked above, beneath minutely dotted with very small brown peltate scales. *Flowers* fascicled, eight to ten or twelve or more, large, handsome, terminal. *Peduncle* glabrous, but squamulose, single-flowered. *Calyx* very small, five-lobed. *Corolla* large, showy, orange-coloured, (though not bright), with scattered red spots, between infundibuliform and campanulate: the *tube* gradually widening upwards into a five-lobed, nearly equal *limb*: *segments* broadly obovate, rotundate, obtuse, spreading, or a little revolute. *Stamens* ten, slightly ascendent; five on one side the style, lying against the corolla, five on the other side. *Anthers* dark purple, almost black, two-pored at the apex, from which pore the white *pollen* falls out in cohering masses. *Ovary* oblong, five-lobed. *Stigma* peltate, with five points (the margin looking less like an indusium than in the figure of Dr. Horsfield). *Style* about as long as the stamens.

Fig. 1. Under side of a portion of the leaf, natural size, showing the squamulose dots. 2. Portion of the same:—*magnified*. 3. A scale:—more highly *magnified*. 4. Pistil:—*magnified*.

4337.

Fitch del. et lith.

Reeve imp.

TAB. 4337.

TROPÆOLUM UMBELLATUM.

Umbellate Tropæolum, or *Indian Cress*.

Nat. Ord. TROPÆOLEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4097.)

TROPÆOLUM *umbellatum*; glabrum, scandens, foliis subpeltatis cordato-quinquelobis, floribus umbellatis, calyce cylindraceo calcare obtuso subcurvato longiore, petalis spathulatis rectis acutis, 3 calycem superantibus, 2 minimis squamiformibus.

One of the most remarkable of all the *Tropæola*, which have been characterized as bearing *one-flowered* peduncles; here the flowers are umbellate, of a rich orange-red colour, tinged with green, and so copious as quite to overpower the foliage. For its first discovery the merit is due to Professor Jameson of Quito, who gathered it on Pilzhum, a mountain to which, he observes, it is quite peculiar, at an elevation of 7,000 feet above the level of the sea.

To Messrs. Veitch and Sons we owe its introduction to our gardens, through their collector Mr. W. Lobb, who probably collected it on the same spot as that above mentioned, and from the nature of its locality their can be little doubt it will prove to be among the most hardy of the genus. It flowered in Messrs. Veitch's Nursery during the summer months of 1847.

DESCR. *Root* (according to Professor Jameson) a *tuber* of three or four pounds weight. *Stem* climbing, terete, slender, fleshy, purple, zigzag. *Leaves* remote, on long flexuose *petioles*, subpeltate, cordate, deeply five-lobed, the lobes ovate, obtuse, mucronate while young. *Peduncles* axillary, about as long as the petiole, bearing an umbel of five to six or more *flowers*, and small subulate *bracts* at the base of the peduncle and pedicels. *Calyx* orange-red, tipped with green at both extremities, most so when young, cylindrical, the *limb* erect, unequally five-lobed, the base extended into a curved blunt spur which is shorter than the calyx. *Petals* extremely unequal, spathulate, acute, unguiculate, erect (not spreading); three of them red, a little longer than the calyx; the two others orange, very minute, squamiform. *Stamens* as long as the petals. *Ovary* globose, three-lobed. *Style* thick, shorter than the stamens: *stigma* trifid.

Fig. 1. Flower with the calyx removed from the spur. 2. Pistil:—*magnified.*

4338.

Fitch, del et lith

Reeve, imp.

TAB. 4338.

CHÆNESTES LANCEOLATA.

Lanceolate-leaved Chænestes.

Nat. Ord. SOLANEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx tubulosus, inæqualiter obtuse 5-dentatus, subbilobus, demum parum auctus, lateraliter fissus persistens. *Corolla* hypogyna, infundibuliformitubulosa, subincurvata, lobis 5 acutis, margine floccosis, æstivatione valvato-induplicatis, basi plicatis, dentibus brevibus interjectis. *Stamina* 5 subinclusa, filamentis basi adnatis, mox liberis, gracilibus, erectis vix exsertis; antheris oblongis, basi fixis. *Ovarium* ovatum, 2-loculare; *stylus* gracilis, apice incrassatus, exsertus. *Stigma* clavato-bilobum. *Bacca* obovata, calyce hinc fisso inclusa. *Semina* numerosa, in pulpo nidulantia, rugosa, reniformia.—Frutices Andicoli Americæ intertropicæ. Folia *alterna, petiolata.* Flores *speciosi coccinei v. aurantiaci* (*v. purpureo-cyanei*). Bacca *rubra. Miers.*

CHÆNESTES *lanceolata*; fruticosa, ramulis cano- v. subferrugineo-floccosis, foliis lanceolatis acuminatis supra parce pubescentibus infra pallidioribus floccoso-tomentosis, petiolo canaliculato tomentoso, umbellis brevibus multifloris, calyce urceolato 5-dentato mollissime pubescente pilis floccosis, corolla subcurvata (purpureo-cyanea) parce puberula loborum marginibus floccosis, antheris lineari-oblongis subinclusis. *Miers.*

CHÆNESTES lanceolata. *Miers, in Hook. Lond. Journ. Bot. v.* 4. *p.* 338.

The seeds of a fine flowering specimen of this were sent by Mr. Purdie from the mountains of Quindiu, marked "a very beautiful shrub"; and so it has proved. The young plants grew rapidly and were planted out against a wall in the Royal Gardens, in the summer of 1847, where they blossomed and continued to produce their umbels of rich deep-blue flowers till the cold of autumn injured them. These flowers, in colour and general appearance, bear considerable affinity with *Iochroma tubulosa*, Benth. (Bot. Reg. 1845. t. 20,—*Habrothamnus cyaneus*, Lindl. l. c. 1844. Misc. 68); but this truly belongs to Mr. Miers' new genus, *Chænestes*, of which the *C. fuchsioides* (*Lycium*, H. B. K. and Hook. Bot. Mag. t. 4149) may be considered the type; it is very nearly allied to *C.* (*Lycium*, H. B. K.) *umbrosa*, Miers,—differing from that chiefly in its narrower and more downy leaves, and in the colour of the flowers; here deep blue, in *C. umbrosa* "coccinei", according to Humboldt. If, however, only the dry specimen be examined, our plant as well as the *C. umbrosa* may be supposed to have *red* flowers; and hence our valuable friend Mr. Miers has observed in the Journal above quoted, of our *C. lanceolata*, that "the corolla seems crimson". When recent, the flowers are as rich and deep a blue, a little inclining to purple, as the *Iochroma* figured by Dr. Lindley and their fine colour constitutes one of the great charms of the plant.

DESCR. A *shrub* four to five feet high, the young *branches* herbaceous, downy with stellated hair. *Leaves* alternate, rather large, oval or elliptical-lanceolate, membranaceous, acute, entire, tapering below into a long petiole, slightly downy above, beneath stellato-tomentose, the young leaves arachnoid: in age, however, almost every part becomes glabrous. *Umbels* axillary, or rather supra-axillary, and terminal or nearly so, almost sessile, downy. *Pedicels* slender, filiform, pendent. *Flowers* drooping. *Calyx* between urceolate and cylindrical, unequally five-toothed, the teeth blunt, erect: there is besides a cleft a little way down on one side. *Corolla* two inches long, rich deep purplish-blue, cylindrical, glabrous, somewhat dilated at the mouth into a short five-toothed spreading limb, which is downy. *Stamens* rather shorter than the *style*: both scarcely exserted.

Fig. 1. Stamen. 2. Pistil:—*magnified*.

4339.

Fitch, del. et lith.

Reeve, imp.

TAB. 4339.

BROWALLIA SPECIOSA.

Showy-flowered Browallia.

Nat. Ord. SCROPHULARINEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Cal. 5-dentatus v. 5-fidus. *Corolla* hypocraterimorpha, tubo superne parum dilatato, limbo obliquo breviter et late subbilabiatim 5-lobo, lobis emarginatis (in *B. speciosa* acuminatis) antico paulo majore, æstivatione plicato-bilabiata. *Stamina* fertilia 4; postica breviora, filamentis lanatis, antherarum loculo altero minimo casso; antica longiora, antheris æqualiter bilocularibus. *Stylus* apice bifidus, lobis latissimis divaricato-subbilobis, intus stigmatosis. *Capsula* membranacea, valvulis bifidis, dissepimento tenuissimo. *Embryo* rectus. —Herbæ *rarius* frutices, Americæ australis, *plus minus viscido-pubescentes.* Folia *alterna, integerrima.* Flores *ad axillas foliorum superiorum pedicellati; in cymas irregulares terminales dispositi.* Corollæ *violaceæ, cærulescentes v. albidæ. Benth. in De Cand.*

BROWALLIA *speciosa*; foliis oppositis alternisve ovatis acuminatis petiolatis, pedunculis axillaribus solitariis unifloris, calycis laciniis subulatis tubum æquantibus, corollæ laciniis ovato-acuminatis.

Had not the name of *grandiflora* been pre-occupied, we should gladly have adopted it for the present new species of *Browallia* which we had the good fortune to receive from our Collector, Mr. Purdie, who discovered it in the mountains of Tolima and Quindiu, in the year 1846. The flowers are thrice the size of those of *B. grandiflora* and the segments of the corolla are not retuse, nor bifid, but acuminate. It flowered in September, 1847, both in the stove of Kew Gardens and in those of Syon House, being derived from the same source.

DESCR. *Stem* erect, branched, glabrous (as is almost every part of the plant). *Leaves* sometimes opposite, sometimes alternate. *Peduncles* axillary, solitary, single-flowered, in general shorter than the leaf. *Calyx-tube* ovato-cylindrical: *limb* of five, erect, subulate segments, nearly equal in length with the tube. *Corolla* hypocrateriform: *tube* long, slender, thrice the length of the calyx: *limb* oblique, somewhat two-lipped, of five large, spreading, ovate, acuminate segments, striated, pale lilac beneath, dark purple above: throat white. *Stamens* inserted in the faux, didynamous; *filaments* short, ciliated, curved above. *Anthers* didymous. *Ovary* globose on a short small disc, two-celled. *Ovules* very numerous on a large central placenta in each cell: *style* nearly as long as the tube of the corolla. *Stigma* two-lipped, four-lobed within the lips.

Fig. 1. Tube of the corolla laid open, showing the stamens and pistil. 2. Back view of the stigma and upper portions of the style. 3. Front view of ditto:—*magnified*.

4341.

Fitch, del. et lith.

Reeve, imp.

TAB. 4340.

EXACUM TETRAGONUM; *β. bicolor.*

Square-stalked Exacum; two-coloured var.

Nat. Ord. GENTIANEÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. Calyx 4-5-partitus, segmentis dorso carinatis v. alatis. *Corolla* rotata marcescens, tubo demum globoso, limbo 5-partito. *Stam.* 4–5, corollæ fauci inserta, suberecta. *Antheræ* immutatæ, per aperturam rimæ poriformem apice dehiscentes. *Ovarium* valvis introflexis biloculare, ovulis suturæ centrali utrinque affixis. *Stylus* distinctus, declinatus, deciduus, stigmate indiviso capitulato v. leviter transverse sulcato. *Capsula* bilocularis, bivalvis, septicida, placentis centralibus nunc secedentibus nunc in unam coadunatis demum e valvis liberatis. *Semina* minutissima, placentis immersa.—Herbæ *plerumque annuæ, strictæ, glaberrimæ,* cyma *terminali, in* India Orientali insulisque nonnullis maris Indici *indigenæ. Griseb. in DC.*

EXACUM *tetragonum*; caule tetragono subsimplici, foliis subamplexicaulibus ovato-oblongis acuminatis 5-nerviis margine lævibus, calycis alati 4-partiti segmentis aristato-acuminatis, corollæ tubo brevi lobis ovato-lanceolatis subacuminatis.

EXACUM tetragonum. *Roxb. Fl. Ind. v.* 1. *p.* 396. *ed. Wall. v.* 1. *p.* 413. *Wall. Ic. Plant. Rar. v.* 3. *t.* 276. *Wall. Cat. n.* 4356. *Griseb. Gen. et Sp. Gent. p.* 107. *et in De Cand. Prodr. v.* 9. *p.* 44.

EXACUM Hamiltonii. *Don, Gard. Dict. v.* 4. *p.* 213.

β. *roseum,* Griseb.; foliis paulo angustioribus, corolla rosea. *Griseb. in De Cand. Prodr. l. c.*

δ. *bicolor*; foliis fere ovatis, corollæ segmentis albidis apice purpureis.

EXACUM bicolor. *Roxb. Fl. Ind. v.* 1. *p.* 397. *ed. Wall. v.* 1. *p.* 413. *Griseb. in De Cand. Prodr. v.* 9. *p.* 45.

An East Indian plant, for the seeds of which we are indebted to J. E. Law, Esq., of Tanna, Bombay. He finds it growing profusely in the Concan among long grass. The seeds being sown in the autumn of 1846, produced flowering plants in the stove of the Royal Gardens in June, 1847. The blossoms are highly ornamental; but as the plant is annual it may prove difficult in some seasons to ripen the seed. That it is the species called *Exacum bicolor* by Roxburgh, I can hardly doubt, and Mr. Law agrees with me in considering it to be so; but I am equally disposed to believe that the *E. bicolor* is only a var. of

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E. tetragonum. The flowers are very variable in size and colour, and even in our plant Mr. Law observes the colour is sometimes altogether purple; and Dr. Roxburgh remarks that the leaves are also very variable.

DESCR. *Root* annual. *Stem* erect, a foot and more high, simple below, panicled above, tetragonous; the angles more or less winged. *Leaves* sometimes broadly ovate, acute, becoming narrower upward, ovato-lanceolate, and even lanceolato-acuminate above, three- to five-nerved, glabrous, smooth at the margin, pale beneath. *Flowers* in a *cyme* or *panicle,* few (in our specimen), or (in the native specimens) many-flowered: *branches* trichotomous, or dichotomous with a single-flowered *peduncle* in the axil, all tetragonous and slightly winged at the angle, with a subulate *bractea* at the base. *Calyx* deeply five-partite: the *segments* broadly ovate, aristato-acuminate, furnished with a broad wing on the keel, which is decurrent more or less on the angles of the footstalk. *Petals* large, obliquely obovate, acute, purple, white at the base. *Stamens* four, curved to one side. *Filaments* short. *Anthers* large, subulate, truncate and opening by an oblong pore at the extremity. *Ovary* ovate: *style* longer than the stamens: *stigma* two-lipped.

Fig. 1. Tube of the corolla 2. Pistil:—*magnified.*

4341.

Fitch, del. et lith.

Reeve, imp.

TAB. 4341.

ANEMONE JAPONICA.

Japan Anemone.

Nat. Ord. RANUNCULACEÆ.—POLYANDRIA POLYGYNIA.

Gen. Char. Involucrum 3-florum, a flore distans, foliolis incisis. *Calyx* petaloideus, 5–15-sepalus. *Petala* 0. *De Cand.*

ANEMONE *Japonica*; caulescens, foliis radicalibus caulinisque ternatim sectis, segmentis cordatis trilobis inæqualiter ampliato-serratis, involucralibus inferioribus petiolatis basi cuneatis cæterum conformibus superioribus sessilibus, pedunculis elongatis v. nudis unifloris v. dichotomo-ramosis et iterum involucratis, sepalis plerumque 20 extus sericeis, caryopsibus ecaudatis dense villosis. *Sieb.*

ANEMONE Japonica. *Siebold, Fl. Japonica, v.* 1. *p.* 16. *t.* 5. *Lindl. Bot. Misc.* 1846. *p.* 66. *Walp. Repert. Bot. v.* 1. *p.* 28.

ATRAGENE Japonica. *Thunb. Fl. Jap. p.* 239.

CLEMATIS? polypetala. *De Cand. Prodr. v.* 1. *p.* 10.

A native of damp woods on a mountain called Kifune, near Miaho, in Japan, and introduced to this country by Mr. Fortune during his travels in China. As the plant is, according to Siebold, much cultivated by the Japanese on account of the beauty of its flowers, I cannot but fear that what have been transmitted to our Gardens exhibit strong marks of the flowers being double (floribus plenis), which may account for the fact mentioned by Siebold of the seeds rarely coming to perfection. Be that as it may, the species is a very beautiful one, flowering during the summer months and till late in the autumn. It is, moreover, perfectly hardy, and has endured, unharmed, the winter of 1846–7, in the open air. A moist soil seems most favourable to its success.

DESCR. A herbaceous perennial, everywhere soft and downy with short hairs. *Leaves* radical, on long petioles, ternate: *leaflets* petiolulate, cordate or cordato-ovate, acute, three- or five-nerved, irregularly cut into three or five lobes (the lateral leaflets oblique) and coarsely serrated. *Scape* erect, one and a half to two feet high, divided above in a trichotomous manner, involu-

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crate, some of the branches or peduncles single-flowered, others again ternately divided and then again involucrate: *leaves* of the *involucre* ternate, nearly sessile, the leaflets divided as the radical leaves but scarcely petiolulate. *Flowers* large, handsome, erect. *Perianth* rose-lilac, consisting of from fifteen to twenty oblong-obovate, spreading sepals. *Stamens* numerous. *Anthers* bright yellow. *Ovaria* numerous, ovate, silky, collected into a globose head. *Styles* extremely short, hooked.

Fitch, del. et lith.

Reeve imp

TAB. 4342.

GESNERIA TRIFLORA.

Three-flowered Gesneria.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4217.)

GESNERIA *triflora*; caule erecto obscure tetragono subsimplici petiolisque dense ferrugineo-lanatis, internodiis elongatis, foliis amplis ovato-acuminatis serratis reticulato-rugosis pubescentibus subtus pallidis dense lanatis, pedunculis axillaribus umbellatim trifloris petiolo pedicellisque brevioribus lanatis, umbellis basi bibracteatis, calycis lanati tubo hemisphærico lacinias acuminatas æquante, corollæ flavæ tubo ventricoso rufo-hirsutissimo, limbi ore contracto, lobis parvis rotundatis patentibus.

Tubers of this *Gesneria* were sent from New Grenada by Mr. Purdie, and flowering plants were in perfection in the Royal Gardens in the summer of 1847, continuing a long time in blossom. The flowers are by no means so copious as in the *G. Hondensis,* to which the species is in some respects allied; but the corollas and foliage, too, are larger. It has affinity also with *G. elongata,* said to be from "Quito?", (I possess specimens from Mexico): which has much longer peduncles, and a different habit and foliage.

DESCR. A foot and a half or two feet high, nearly simple, erect, stout, obscurely four-sided, densely clothed with ferruginous tomentum. The space between the pairs of leaves is elongated. *Leaves* opposite, four to six inches long, on woolly *petioles,* ovate, acuminate, serrated: upper surface dark green, wrinkled with copiously reticulated nerves, and downy beneath; the costa and main nerves are prominent, and the whole densely covered with pale tomentum. *Peduncles* axillary, solitary, shorter even than the petiole, woolly, bearing, in an umbel, three, elongated *pedicels,* longer than the peduncle, and, at their base, two small opposite ovate bracteas. *Calyx* woolly, hemispherical, cut half way down into five ovato-lanceolato, erect, acuminated *segments. Corolla* nearly thrice as long as the calyx, tubular, but slightly curved and ventricose, yellow, densely clothed with shaggy red hair;

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the mouth contracted, spotted; the *limb* of five short, spreading, rounded lobes. *Stamens* and *pistil* included. *Ovary* ovate, hairy, with five unequal orange-coloured glands at the base: *style* downy: *stigma* two-lipped.

Fig. 1. Pistil and hypogynous glands:—*magnified.*

4343.

Fitch, del. et lith.

Reeve, imp.

TAB. 4343.

GARDENIA NITIDA.

Glossy-leaved Gardenia.

Nat. Ord. RUBIACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4307.)

GARDENIA *nitida*; inermis glaberrima, foliis oppositis ternisve submembranaceis lato- seu oblongo-lanceolatis acuminatis petiolatis undulatis nitidis, stipulis late ovatis acutis, floribus terminalibus solitariis sessilibus, calycis tubo cylindraceo ecostato, limbo 6-partito laciniis obovatis foliaceis patentibus tubo æquilongis corollæ tubo ter brevioribus, corollæ speciosæ albæ tubo cylindraceo (3 poll. longo) limbi 7-partito laciniis oblongis cito reflexis marginibus revolutis, staminibus 6–7 inclusis, stylo exserto apice bifido, stigmatibus cuneatis bifidis.

From the stove of Messrs. Lucombe and Pince, who raised it from seeds taken from a dried specimen gathered by Mr. Whitfield at Sierra Leone. It proves to be a perfectly new and most distinct species, possessing handsome, dark green, glossy foliage, flowers among the larger of the genus, deliciously scented, the calyx furnished with large leafy segments, the corolla of the purest white, its limb cut into seven long segments which are soon reflected, as shown in our figure. Though shrubby, it is eminently suited to "pot culture", and deserves a place in every stove. It blossoms in October and November, and will probably be found to do so at other seasons.

DESCR. The flowering *plant* from which our figure was taken is remarkable for its dense, compact, and sturdy habit, not more than two feet high, but three feet across, so as even without blossoms to be a beautiful object; young *branches* herbaceous, glabrous, as is every part of the plant. *Leaves* oblong-lanceolate, tapering at both extremities, below into a short *petiole*, penninerved and reticulated, undulate, very glossy and dark green above, paler beneath. *Stipules* broadly ovate or triangular, acuminate, appressed. *Flower* axillary, solitary, sessile, large, white, deliciously fragrant. *Calyx-tube* much elongated, cylindrical: *limb* of seven rather spreading obovate, or spathulate

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spreading leafy segments. *Corolla* pure white: *tube* slender, cylindrical, about as long as the whole calyx, slightly wider upwards: the *limb* of seven very long, oblong, obtuse *segments*, soon becoming reflexed, and their sides or margins also reflexed. *Stamens* six or seven, included. *Style* filiform, a little exserted; *Stigma* bifid, the segments cuneate and bifid.

Fitch, del. et lith.
Reeve imp.

TAB. 4344.

THIBAUDIA PICHINCHENSIS, β. glabra.

Pichincha Thibaudia; *glabrous* var.

Nat. Ord. ERICACEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4303).

THIBAUDIA *Pichinchensis*; ramulis angulatis sparse furfuraceo-hirtellis glabrisve, foliis brevissime petiolatis ovali-oblongis sublanceolatisve obtuse acuminatis basi rotundatis quintuplinervibus v. subpenninervibus utrinque scabriusculis subtus pilis parvis nigris raris conspersis, racemis axillaribus floribundis folio brevioribus, bracteis parvis, calycibus furfuraceo-hirtellis, corollis glabris. *Benth.*

THIBAUDIA Pichinchensis. *Benth. Plant. Hartw. p.* 223. *n.* 1217.

β. *glabra*; ubique omnino glabra vel foliis solummodo subtus pilis raris fuscis instructis. (TAB. NOSTR. 4344.)

Rich as my Herbarium is in specimens of *Thibaudia* from the Andes of South America and of Mexico, there is not one that exactly corresponds with the present; and in no genus is it harder to refer the individuals to described species, even when aided by figures. Our plant is raised from seeds sent from the elevated mountains of Columbia by our Collector, Mr. Purdie, and it flowered first in the Greenhouse at Syon, in September, 1847. It approaches, however, so closely to the specimens of *T. Pichinchensis* of Mr. Bentham, collected by Hartweg on the west side of Pichincha, and still more to the description of the latter author, that I am disposed to pronounce it a glabrous variety of that species. From Professor Jameson I have a *Thibaudia* (no. 293) "from woods on the western side of Pichincha"; and another "from Pulalaqua, 9,000 feet above the sea-level", which I am inclined to consider identical with our present plant, but the leaves are blunter and the flowers narrower. It is only from an extensive suite of specimens, or from an investigation of living plants, that we can arrive at any accurate conclusions; and no genus is more worthy of a full monography. The present species is eminently beautiful, with its bright green, rather ample foliage and flowers, larger than and as waxy as those of any Heath.

Descr. At present our plant forms a shrub only a foot and a half to two feet high, (six to twelve feet, according to Hartweg) with glabrous slightly angled *branches,* the young ones green. *Leaves* alternate, on short *petioles,* oblong-ovate, acuminate, but in general rather obtuse, between coriaceous and fleshy, glabrous, or only with a few short pale brown, scattered, paleaceous hairs beneath, rather obscurely penninerved in the recent state, but in the dry state very conspicuously so; and the nerves, besides the mid-rib, consist of two on each side from below the middle, generally (but not invariably opposite), the lowest pair is directed upwards and usually become obsolete above the middle, slightly anastomosing, the two upper nerves converge towards the point and are connected to the costa and margin by a few faint transverse nervelets. *Racemes* axillary and subterminal, of from four to six or more flowers. *Peduncle* shorter than the leaves, and, as well as the pedicels, inclining downwards (towards the under-side of the leaves), bracteated: *bracteas* minute. *Calyx* red (with its adherent *ovary*) turbinate, articulated upon the pedicel, quite glabrous, the *limb* cut into five, short, triangular, acute teeth. *Corolla* deep rose-red, waxy, paler at the mouth, nearly an inch long, urceolate; *limb* of five, equal, rather spreading, acute *teeth* or segments. *Stamens* included: *filaments* very broad, membranaceous, slightly cohering at the margin: *anthers* linear-subulate, downy, the broad portion attached to the front, or inner-side of the filament, the narrow, acuminated portion free, and opening by two linear pores or slits at the summit.

Fig. 1. Calyx and pistil. 2. Two stamens:—*magnified.*

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4320 ——————— showy.

4341 Anemone, Japan.

4295 Angræcum, cord-like.

4313 Anguloa, Mr. Clowes's *var.*

4291 Anigozanthos, sooty.

4281 Begonia, Fuchsia-like, or Elephant's Ear.

4308 Berberry, holly-leaved.

4339 Browallia, showy-flowered.

4287 Brunfelsia, shining-leaved; Jamaica *var.*?

4297 Butterfly-Plant, Indian.

4300 Calceolaria, or Slipper-wort, clasping-leaved.

4338 Chænestes, lanceolate-leaved.

4284 Chirita, Chinese.

4327 ——— Mrs. Walker's.

4294 Columnea, golden.

4330 ————— thick-leaved.

4279 Cordyline, Rumphius'.

4317 Dryandra, Thistle-like; narrow-leaved *var.*

4326 Echinocactus, cinnabar-flowered.

4311 ——————— hexædron.

4296 ——————— Mr. Williams'

4281 Elephant's Ear, Fuchsia-like.

4333 Eucalyptus, large-fruited or Gum Tree.

4340 Exacum, square-stalked; two-coloured *var.*

4307 Gardenia, clapper-bearing.

4343 ———— glossy-leaved.

4322 ———— long-styled.

Plate.

4342 Gesneria, three-flowered.

4333 Gum-Tree, large-fruited.

4329 Hibiscus, Gooseberry-leaved.

4310 Hypocyrta, white-mouthed.

4323 Indian Cress, showy.

4337 ——— umbellate.

4301 Ipomæa, fine-leaved.

4305 ———— handsome.

4332 Isopogon, round-headed.

4325 Ixora, Mrs. Griffith's.

4302 Lælia, cinnabar-coloured.

4314 Leucothoe, elegant.

4315 Liebigia, showy.

4324 Lisianthus, sharp-angled.

4334 Malachadenia, club-stalked.

4299 Marsdenia, spotted-leaved.

4292 Martynia, fragrant.

4321 Medinilla, showy.

4282 Niphæa, white-lined.

4319 Pentstemon, Mr. Gordon's.

4289 Pharbitis, purging.

4285 Pitcher-Plant, Sir Stamford Raffles'.

4309 Puya, Altenstein's; gigantic *var.*

4280 Purga or True Jalap.

4336 Rhododendron, Javanese.

4298 Ruellia, Mr. Purdie's.

4318 Sage, white-flowered.

4331 Siphocampylos, glandular.

4286 ——————— small-mouthed.

4299 Skull-cap, heart-leaved.

4283 Smithia, purple-flowered.

4303 Thibaudia, beautiful.

4344 ———— Pichincha, glabrous *var.*

4288 Tillandsia, bulbous; coloured *var.*

4335 Tritonia, golden.

4334 Vanda, crested.

4275–8 Water-Lily, great, Victoria.

COMPANION

TO THE

BOTANICAL MAGAZINE.

ADDITION TO THE "HORTUS KEWENSIS."

CLERODENDRON MACROPHYLLUM.

Elatum glabrum fruticosum, foliis amplis ellipticis coriaceis apice acuminatis basi obtusis in petiolum crassum semiteretem breviter decurrentibus integerrimis costa nervisque subtus valde prominentibus, paniculis axillaribus terminalibusque bracteatis, bracteis longis spathulatis, pedunculis ultimis trichotomis, pedicellis apice dilatatis, calycibus deltoideo-acuminatis profunde 5-partitis, laciniis lanceolato-acuminatis conniventibus, corollæ (albæ) tubo calycem duplo superante, limbo 5-lobo, lobis secundis lineari-oblongis extimis angustioribus, staminibus flexuosis divaricatis styloque longe exsertis.

Clerodendron macrophyllum, *Bl. Beitr.* (*non Sims*).

Clerodendron phyllomega, *Steud. Nomencl.* vol. i. p. 382. *Walpers, Repert. Bot.* vol. iv. p. 104.

Hab. Sandy places on Seribu Mountains of Java; and introduced from thence by *Mr. Veitch,* in whose Nursery at Mount Radford, Exeter, three plants have been in blossom for six weeks, and are now (December, 1846) in high perfection.

One of the finest of all the species of *Clerodendron*; with white flowers indeed, but what is wanting in brilliancy of colour in the corolla is amply compensated by the noble foliage (almost resembling that of some East Indian *Magnolia*) and the vast panicle of innumerable blossoms. It is of easy growth, and continues many weeks uninterruptedly in flower. It is a soft-wooded shrub, an inch in thickness at the base of the stem, erect, three feet high. The leaves fourteen to sixteen inches long independent of the petiole, thick and subcoriaceous, dark green, with a very prominent midrib and nerves beneath. The panicles are terminal and axillary; so copious, that the whole plant may be said to be one vast pyramidal leafy panicle. The flowers are about the size and of the same colour as those of *Cler. nutans* (Bot. Mag. Tab. 3049). No figure could possibly do justice to this fine plant in the small pages of our Magazine. It has, we understand, been recently exhibited at a Meeting of the Horticultural Society in Regent Street.

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* The *Cler. macrophyllum* of Sims (Bot. Mag. t. 2536), is only a downy variety of *Cler.* (Volkameria) *serratum,* L.

NOTICE OF A BOTANICAL MISSION TO THE WEST INDIES AND NEW GRENADA;

BY WILLIAM PURDIE,

Collector for the Royal Gardens of Kew; in letters addressed to the Editor.

(Continued from vol. ii. p. 42.)

Santa Martha, June 4th, 1844.

Since my last letter, of the 5th of May,* I have made several excursions to the mountains behind Santa Martha, but on no occasion have I got any higher than 2,000 feet; further progress being impossible from this side. I find there are only two directions in which the Nivada can be reached, one is by way of Rio de la Hacha, the other by the Valle de Upari. The former is the route by which Mr. Linden ascended, and the distance from hence is 150 miles. The latter is the way I think of pursuing, for it is untrodden by any botanist, and it also seems unadvisable to follow Mr. Linden's footsteps: the distance by the Valle de Upari is 250 miles.

Behind Santa Martha rises a succession of mountain ridges; terminated, so far as can be seen from this place, by a lofty range, apparently about 6,000 feet high. Behind this range lies the Valle de Upari, by which the Nivada may be gained. I understand it is a very rich district. Hitherto I have found *Orchideæ* very scarce.

There has been great difficulty in obtaining mules; owing to the want of inland population, there is no demand for these animals, except what are actually in use, and I find them both scarce and dear. As yet, I have bought only two, for which I paid 180 dollars. They are, however, good and valuable. This beautiful country lies uncultivated for want of inhabitants; forests stretch in every direction, hardly a rood of land is reclaimed. There is no intercourse with the interior, and the hire of mules costs 24 dollars each to go to the Valle and back again; with the stipulation, too, that the journey must be performed in a given number of days. Thus it is cheapest in the end to purchase, and I have taken care to select such animals as will please the eye, as well as prove serviceable; otherwise there would be great difficulty in disposing of them again, when I go away. These Columbians look very sharp to their own interests. Hitherto my excursions have been made cheaply; for the gentlemen, to whom I brought letters of introduction, kindly lent me beasts for my journeys: but now I must have my own mules, and I shall require no fewer than four; one for my riding, one to carry specimens and paper, and two others for various articles of cargo, plants, &c. I hope to set off for the Valle on Monday next.

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* No letter appears to have arrived of this date.

I now send a box of *Orchideæ* and a few seeds, together with specimens of a highly curious tuberous-rooted plant, which I have never seen in flower. The Indians use a decoction of the root, not the tuber, for an eye-wash, and consider it a most valuable application for removing inflammation and healing injuries in that organ. The tuber should be kept almost entirely above the soil.

The *Aristolochia* is singular, and its roots contain a valuable astringent, which has the reputation of proving an antidote to the wounds of the most venomous serpents. The Indians aver that long keeping improves the virtue of these roots: some pieces, together with seeds and specimens, and a perfect capsule, are in the parcel. I also send specimens, not in bloom, of a remarkable tree, with a habit resembling a *Punica*; it is marked *Granadilla*, and was discovered, I am told, by M. Funck during his brief visit to Santa Martha: he saw it in flower, and considered it to be a new and splendid species of *Punica*; but to me it seems essentially distinct from that genus.* The calyx is inferior, the capsule dry, and the seeds winged. Though I have never seen the inflorescence, the above peculiarities convince me that M. Funck examined the tree no farther than its general habit, which certainly bears a strong resemblance to *Punica*, to which it owes its local appellation. Lest the seeds should not germinate, I shall procure living plants on my return from the Nivada. I intend sending home a glass case, as soon as I can find withal to fill one.

The roads in this country are dreadfully bad; and communication is mostly carried on by water. Yesterday, returning to Santa Martha, I was obliged to swim two rivers; sometimes they are quite unfordable: in fact, I never passed such a trying fortnight as the last, it being impossible to keep myself dry. The paths are generally conducted by the river-sides, and often the mules capsize and hurl rider and load into the water: add to which, rain falls daily of the most terrific kind. I shall set off for the Valle on Monday, and be absent about three months. To-day the weather is hot and moist, the thermometer indicating 88° in the shade at noon.

I will thank you to decide on the route you wish me to take, after leaving Santa Martha. I could go by Maracaybo to Bogotà, through the plains of Maraceto, and obtain the Palm which produces the Vegetable Ivory, which I am informed grows there. It strikes me this would be the most eligible course to pursue; and then proceed down the Magdalena to Chagres, thus avoiding the navigation up the river (the Magdalena) which is very long and tedious, occupying as much time as it would take to reach Bogotà by way of Maracaybo.

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* It proves to be the rare and beautiful *Lafoensia punicæfolia* of De Candolle.—Ed.

Pueblo Nuevo, Valle de Upari,
July 25th.

Two days ago I returned from La Nivada, bringing a collection of plants, seeds and specimens. The Post from Santa Martha has just put me in possession of your esteemed letter of April 16th; and though I have only two hours in which to answer it, I send a few lines, and can do no more this time, being engaged in preparing a box of seeds, which I shall send by the same conveyance, to meet the August Packet.

I am glad to hear that the articles I despatched formerly have reached England in good order. The Orchideous plant, marked *Broughtonia*, is very handsome. The present parcel of seeds will probably arrive about Oct.; not sooner, because the packet goes to Cartagena and Chagres and returns to the former place, before crossing to meet the Jamaica Packet. I must convey the seeds and specimens to La Fundacion, one hundred miles distant, whence they will go to Santa Martha, one hundred and ten miles more; I shall send them by a canoe, and it is very probable I may arrive myself at Santa Martha, about the same period; for I shall proceed by way of Rio de la Hacha. After conveying these things to La Fundacion, I return hither and ascend the mountains at all the accessible points, viz., the Indian village of Artankes, Rosario and Maracassa. From the latter, I trust it will be found practicable to reach the Nivada; if not, I shall attempt it from the side of Rio de la Hacha, after despatching my collection to Santa Martha. I find M. Funck has preceded me in this direction, having attempted to climb the Nivada from the village of St. Sebastian, but failed in consequence of the excessive cold. I certainly never felt such a piercing air. I, however, reached the snow line and gathered a few plants peculiar to that region. The only combustible article that could be procured to make a fire withal, is a singular *composite* plant, which was too wet to burn readily. No shelter was there, but rocks. The suffering which the Indians seemed to endure from the cold was extreme, although the village where they reside is at an elevation of 6,000 feet; on the second day, one of these poor creatures was unable to proceed, from lightness in the head*, and he lay down among the rocks, till I returned; his companion was also very unwell, but I experienced no farther inconvenience, than a slight throbbing in the temples.

This journey has not been quite so productive as I had hoped; for although I have some good plants of *Orchideæ*, all new to me, the number of species does not exceed ten. One is very remarkable; it is a climber, with pseudo-bulbs upwards of a foot long. It grows fifteen to twenty feet high and bears a long twining spike of handsome *Oncidium*-like blossoms, but denoting a different genus; it is a showy and remarkable plant. The best thing I procured is a terrestrial *Cymbidium*, allied to *C. utriculatum*, but without the conspicuous sheath; it is the handsomest terrestrial *Orchidea* I have ever seen. As I collected abundance of strong tubers, I hope it will succeed in England; the plant is very rare, I have seen it only twice.

Herewith I forward a box of one hundred kinds of seeds from the Nivada, some are of handsome *Ericoid* shrubs. The vegetation, near the snow line, consists mainly of types of European genera; I noticed three *Gerania* and four *Carices* (one of which resembles *C. pendula*), two *Ranunculi*, a showy *Alyssum* &c. The seeds include a *Botrychium* and an *Osmunda*, an *Umbellifera* and a *Senecio*, two *Vaccinia*, one *Cerastium*, two species of *Hieracium*, several of *Gnaphalium*, and many fine shrubs, allied to *Erica;* also a *Lupine* and *Gentian* and three singular tetrandrous plants; I have plenty of seeds of the latter. Near the snow line grew two pretty species, quite unknown to me, and on the margin of the snow, a *Primula* (?) of which I regretted not to obtain plants or seed.

I think of proceeding to Santa Martha in about six weeks, whence I shall make two excursions to the mountains in different directions, to an elevation of 3,000 feet, the greatest elevation that can be attained in that direction. The weather is now pretty good, but rain falls daily on the mountains, towards evening. The lowest temperature I have yet seen is 38°. Fahr., when the cold was extremely piercing.

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* One of the symptoms of the malady, called "La Puña", which affects persons who ascend lofty mountains. See Mr. Cruikshank's description of it, on an ascent of the Andes.. Botanical Miscellany, vol. ii. p. 191–3.

Valle Dupar, August 20th. 1844.

I have just returned from La Fundacion, having forwarded three boxes of plants, chiefly *Orchideæ,* and one of dried specimens. The former will, I hope be sent on without the least delay, but the dried plants can remain at Santa Martha till I return, as it is probable they may imbibe damp on the way and will require fresh papers, previous to their being despatched to England.

Among the contents of the boxes are some very good *Orchideæ,* a pretty *Achimenes,* which seems new, a handsome terrestrial *Cymbidium,* several tufts of a *Sobralia,* an *Oncidium,* with distant pseudo-bulbs, and twining flower-stems, eight feet in length; I have only one indifferent specimen of it. The plants are all packed in sheaths of maize, to absorb any superabundant moisture, and are now in excellent order. I expect to reach, shortly, a good country for *Orchideæ,* which is not the character of any district I have yet visited. This immense cluster of mountains can only be gained by two routes, that of San Sebastian, and of the Rio de la Hacha; in every other direction, they are absolutely inaccessible. The distance, in a direct line, from Santa Martha to La Nivada, is forty-six miles, and by the route I pursued two hundred and seventy miles, two hundred and twenty of which led through an uninteresting plain, a ramification of the great plain of the Magdalena, affording few plants.

I am now on my road for three Indian villages, situated at the slight elevation of 2,000 feet, whence I hope to make my way to a higher latitute; 4,000 feet is probably the height most favourable to the production of *Orchideæ.* After reaching Rio Hacha, I shall ascend the Nivada from that side, and I do not expect to return to Santa Martha before the beginning of October. From thence I plan to undertake two excursions to the interior, which is all that can be effected, because of the uninhabited nature of the country. Owing to the entire want of facilities of access, the fine soil and desirable climate of these mountains are lost to the human race; and the thinly scattered population, chiefly of Spanish descent, is located in hot savannahs, of which the people's looks plainly testify the unhealthy influence. The few villages on the mountains belong exclusively to the aboriginal Indians; the remote situation having preserved them from the ravages of Spanish conquest. A route leads to Bogotà by Ocaña, which no botanist has visited, and it passes over some lofty mountains.

You will find a charming and fragrant orchideous plant in the box; it is numbered '9'. I gathered it to day in flower.

I expected to have arrived at Rio Hacha ere this time, but have been detained some days by the illness of one of my mules, which is now better. Among the seeds from the Nivada, you will find some of a curious *Columnea*; it grows upright and produces its flowers in large whorls, six inches across; the calyx, is scarlet, very large and showy, and the whole habit of the plant is striking. The flowers protrude but slightly beyond the calyx.

The weather is exceedingly unsettled: the plains are warm: the thermometer varying from 90°. to 96°. in the shade; a heat which is the more oppressive, from the absence, thus far inland, of the sea breeze.

I find it is impracticable to reach Maracaybo by land. The Indians and some other tribes being now hostile to the Columbian Spaniards, it is said they will allow no one to traverse their territory. I am sorry to hear that the man bringing the post, was murdered the other day between Rio de la Hacha and Santa Martha, after being robbed of three hundred dollars.

Rio de la Hacha, Oct. 19th, 1844.

I arrived here yesterday from the interior, bringing my collections with me. During this last excursion I have explored the south side of the Nivada de Sta. Martha in all its accessible parts. I sent hither before me, three mules' loads of plants, chiefly *Orchideæ*, from the Sierras de Maracaybo; my visit to which occupied a month beyond the time on which I had calculated; but finding myself, when I reached the village of Molina, in the Valle Dupar, close to the above named Sierras, I judged it right to investigate the first great range. Though the wet weather was unfriendly to travelling, I gathered more *Orchideous* plants on these beautiful mountains, than have fallen to my lot during all my journeys in the Nivada. This Nivada is one solitary stupendous cluster, severed from the Sierras de Maracaybo, by the Valle Dupar, which is from ten to twenty-five miles in width and stretches its broad savannahs to the great plain of the Magdalena river on the west, and the extensive savannah of the Guajira to the east; while a few hills, scattered on the flat land, seem to form an imperfect connexion between these two vast ridges.

Among other *Orchideæ*, I have found a splendid *Limodorum* (no. 22) resembling *L. Tankervilliæ*, but of much finer growth: its scapes are simple, three feet high, sepals pure white, and labellum dark purple: the blossoms are rather smaller than those of *L. Tankervilliæ*. It is rare and confined to one mountain forest, where it grows in the earth among rotten trees and wood. Also a charming *Peristeria* and a *Stanhopea*. I was surprised to find the forest, at the summit of the range, consisting of the same kind of *Podocarpus* which I had seen in Jamaica; it is of gigantic stature, vyeing with the loftiest trees. I am satisfied that these mountains, if traversed to Maracaybo, would produce many valuable plants, especially *Orchideæ*; but the journey would be a task of no small difficulty; for all communication was cut off, two years ago, with the view to prevent the escape of General Paz, and the way has never been re-opened. The savage tribes of wandering Indians, the bad state of the roads, and the abundance of tigers, bears, and other wild beasts, would offer formidable obstructions.

It was a disappointment, on reaching Rio de la Hacha, to find no letters; though I had requested Mr. Marks, the Vice-Consul at Sta. Martha, to forward what might arrive for me. Your last bears date April 16th.

I fear this is but a bad season for sending home my plants, for though I have used all possible expedition, with the view of forwarding them ere winter, I have been unable to accomplish my design. The Packet has also changed its time of sailing, so that the middle of November is now the earliest period when the boxes can be sent, and they and my letter will go by the same opportunity. I am now busy packing four boxes, and I enclose a list of their contents.

In two or three days, I shall set off for the Nivada, to ascend it by this side; an excursion which will occupy about a month, when, on my return, I shall ship my plants from Sta. Martha, and there dispose of my mules; that place affording the best market for them. The Nivada is four or five days from hence; it has been the wet season ever since I came here, and my journey has proved, of course, all the more slow and tedious and difficult.

I send a few seeds, to fill up the spaces of the box; among them are some good things: a species of *Justicia*, much resembling a *Fuchsia* in habit and inflorescence; the seeds were scarce, but I procured a small quantity. No. 181 is an interesting *Ipomœa*, of an upright heath-like habit, and large showy flowers; there are three species of *Aristolochia*, two of *Manettia*, some of *Pentstemon*, with a greenish yellow inflorescence. No. 164, a Tetrandrous plant, is very showy, and has the habit of a *Mimulus*, and flowers like a *Petunia*, large and white. I have also some species of Orchideous plants, that I consider new.

Shortly after Mr. Linden visited the Nivada, an epidemic broke out among the Indians, which carried off about fifty persons; and the poor ignorant beings attribute the malady to his presumption in exploring that range, and consider him to be in concert with some evil spirit, and give him the name of '*El Diablo*'. The governor assures me that this delusion is deeply rooted: he has vainly endeavoured to combat it, and even apprehends it may interfere with my movements and hinder my success.

Rio de la Hacha, Dec. 14th, 1844.

Possibly you are surprised that my collections have not arrived before winter, and my own calculations are equally put out by it; but the nature of the country through which I have travelled, the wet season and the great distance, have conspired to cause this delay. As far as the performance of my duty allowed (in executing which I have ascended the mountains, wherever it was practicable,) my movements have been made with expedition; for my health was admirable, till the second ascent of the Nivada, from whence I am just returned; I was there sharply attacked with fever and ague, and was laid up for a fortnight in San Miguel, an Indian village, the highest on this side of the Nivada, its elevation being about 5,000 feet. I believe that frequent wettings induced this illness; but I am now happily recovered. It was my intention to reach Santa Martha, on the coast side, fifty miles from the road by which I have come; and only ninety remained from a village called Dibulla, but I find it utterly impracticable to pursue that route, for I should be compelled, by keeping along the coast, to cross all the rivers at their mouths; and some of them are truly so many arms of the sea. The whole flat country, lying between the sea and the mountains, several leagues wide, is inundated completely, which prevented bringing my mules from Dibulla. We have just had a few dry days; and the general opinion is, that the wet season is over. I have therefore sent for the beasts, and shall travel by land, through the Valle Dupar, now the only practicable course; for if I shipped my mules, the expense of it would be greater than that of going by land. It is also somewhat uncertain how long I might be detained here.

Rio Hacha is prettily situated on the dry sandy beach, without any harbour: it is a cool and pleasant spot.

If possible, I shall set off on the 17th. I have two objects in view, one is to sell my mules at Santa Martha; for I should dispose of them here at a great loss, because the Indians breed these creatures in great numbers at Guagira; and the other, because I fear that the four boxes of *Orchideæ* and one of seeds, which were to leave Santa Martha by the November or December packet, may have arrived in England, at a time of frost; so that I am very anxious to secure more of the same plants; which I shall get in the Interior. Among the very fine species are a *Schomburghkia*, a splendid *Limodorum* and a very singular and uncommon *Maxillaria*. I have never seen the latter in full bloom, but judging from its strong habit and still stronger flower-stems, I expect it will prove a remarkable thing; these I hope to procure in a day or two, from the Sierras of Maracaybo; the remainder of the road, three hundred miles, lies through a savannah country, and will afford the seeds of some fine Palms. I expect the distance will occupy about eighteen days. I shall pack up here the plants collected on this side of the Nivada, to be shipped by the first conveyance to Santa Martha; whence they will be despatched, so as to reach England early in April, when there will be no risk of frost. Among other plants, gathered on this side of the Nivada, is a magnificent *Oncidium* ranking among the most conspicuous of that noble tribe: its bright yellow flowers are slightly striped in the centre with scarlet, and as large (which you will see by the specimens) as those of *O. Papilio*: the habit of the species is strictly trailing, like a *Manettia*. I have some fears about getting this plant to England alive, its pseudo-bulbs being so delicate. I found it climbing over mossy trees, to their topmost branches, on the river San Antonio, at an elevation of about 3,000 feet. There is also a showy and fragrant plant, like *Catasetum*, but a distinct genus.

The ascent of this slope of the Nivada has afforded me many more plants than did the other side, by way of San Sebastian. The vegetation is generally stronger and finer. After ascending 2,000 feet, I came to a gigantic forest of *Laurus Persea* (Avocado Pear) strewing the ground with its delicious fruits, and the luxuriant foliage affording an impenetrable shade: there were also a few scattered Palms; the slender and graceful *Chamædorea gracilis* was particularly abundant; producing pendent clusters of golden fruit, which imparted a lively aspect to the otherwise sombre wilderness. This mixture of trees continued till about 4,000 feet of elevation; where Palms become more predominant, blending with the less noble but more delicate and beautiful Tree-Ferns. There was nothing, however, new to me in this vegetation. Higher still, at 5,000 feet, comes the *Podocarpus*, with some Myrtaceous trees, *Melastomæ* and the stately Wax-Palm, the only Palm that is found at such an elevation. Hence, till shrubs cease (at about 11,000 feet) the beautiful *Befarias* (the *Rhododendrons* of South America) and other ericoid shrubs, with some suffruticose *Syngenesia* and a few conspicuous *Melastomaceæ*, compose the principal vegetation. The last plant of any size seen near the snow, is a robust *Syngenesia*, which is esteemed highly medicinal; here and there grew also patches of a showy *Lupine*, some kinds of *Geranium*, and, in swampy spots, an *Osmunda*, several *Carices*, and a striking *Pinguicula*, reminding me of our *P. grandiflora*, with foliage of the same glistening and icy-cold nature. The plants that vegetated highest up were a conspicuous species of *Alypium*, and, along the margin of perpetual snow, a *Primula*; which I should have much liked to gather in bloom. Many other plants were seen upon the Sierra, but not in sufficient abundance to form any feature in the landscape. I found in rocky spots a striking *Echeveria*; a neat, but not conspicuous *Daphne*; one species of *Fuchsia*, and two of *Berberis*, with a strong and rather rare Passion-flower, a *Tropæolum*, several *Ardisiæ*, an *Ilex*, and a *Cratægus*, &c.

On my return hither two days ago, I received your and Mr. Smith's letters, announcing the arrival of my first box of plants from Sta. Martha: sorry I am that some of the contents had perished. I am now convinced that it is a faulty plan to pack *Orchideæ* (finally) shortly after they are gathered; which I did with all my Jamaica plants, and with the box in question from Sta. Martha. I have observed that after carrying plants in open airy baskets for a week or two, the oldest bulbs of the *Orchideæ* commonly perish: thus it must be advisable to ascertain their state before sending them away. When I arrived at Rio de la Hacha, I found, in the four boxes just despatched, that there was a full bushel of dead and broken rubbish: if this had been allowed to remain in consequence of the packages having been closed, it must have destroyed many more plants; and to a similar process of unexamined decay, I attribute my previous failures.

I am anxious to hear how the roots of *Achimenes* have borne the journey; in order that I may yet secure more if desirable, for I know of a station where three species grow, on the mountains above Sta. Martha; one of which I believe is not in cultivation. Every inquiry has been made, since I came into Columbia, with a view to obtaining intelligence of the *Palo de Vacca* (Cow-tree), but I can hear nothing of it. The *Phytelephas* (Vegetable Ivory Palm) is procurable at Sta. Martha, the nuts being brought from the province of Maraquita; but I am not so sure of their freshness: therefore, in the absence of further directions from you about my movements, I think of ascending the Magdalena, and myself collecting growing plants and seeds of the Ivory Palm. If time allows, I shall make an excursion to the mountains in that district, and return to Santa Martha about the middle or end of March. I have much to do there and mean to make the best possible use of my opportunities and to bring with me all the plants I can.

If there is anything you particularly desire to receive from Jamaica, have the goodness to specify it: my acquaintance with the stations in that island will probably enable me to procure it without difficulty, and it is probable I must come home *viâ* Jamaica.

Santa Martha, February 21st, 1845.

I returned to this place a month ago and was laid up immediately for a fortnight, with fever and ague: though weak, I am now recovered. There is much fever in the country, carrying off great numbers of people. My first business has been to prepare my plants, which are despatched by this day's Packet (the list is enclosed). They have been gathered some time and are packed in the way recommended by Mr. Smith in his last letter; so that I trust they will arrive in the same excellent order they are in now. I particularly wish that the bulbs of the trailing *Oncidium* may succeed: they are delicate. They should be twisted round a mossy branch and placed in a cool part of the stove, their native habitat being river-courses, 4,000 feet above the level of the sea.

I take the liberty of mentioning that the thermometers arrived safely; but they are of no use to me; because I want them to ascertain heights, which can be estimated sufficiently accurately by a thermometer for all botanical purposes. For instance, my thermometer gave the altitude, which I reached on the Sierra Nivada, as 14,500 feet; and I calculated the snowy peaks above to be 2,000 feet higher than where I stood; and as this amounts to the same measurement as Humboldt, and I tested the elevation again when I descended, I feel satisfied with the general correctness of my reckoning. But the thermometers now sent are unfit even for the common temperature of the tropics, their range being only 130° Fahr.; so that riding in the sun would burst them in my pocket. Unfortunately I am now without one; for a thermometer which I purchased in Jamaica was broken at the time of my illness.

The boxes contain many fine plants. No. 3 is perhaps among the noblest of *Orchideæ*; its pseudo-bulbs resemble those of a

Gongora, but are longer, and the peduncles, two feet long, are pendent, and bear at the extremity three or four very large fragrant flowers, with a scent equalling that of *Stanhopea grandiflora*, but more succulent, and thus very difficult to dry; orange and scarlet are the prevailing colours of these charming blossoms. This plant is very rare, and comes from the Sierras of Maracaybo.

I also send a box of seeds and one containing *Cacti*: there is a pretty *Mammillaria* and a few plants of a species of *Melocactus*, probably distinct from *M. communis*. Among the seeds are some of a splendid *Passion-flower*, which I gathered near the snow: it was in bloom on my first ascent, but I could not secure fruit, till the last time. I found this fruit very delicious, the Indians give it the name of *Cummincalla*. In a few days I expect to secure growing plants of *Lafoensia punicifolia*, for my Ward's case.

I lately sold my four cargo mules for eight doubloons: less than they cost by a good deal; but I have had eight months work of them, and they are, of course, somewhat out of condition, and grass being scarce, their keep is very dear here. I still retain my own riding mule, which I bought for one hundred dollars, and expect to realize the same sum for it.

The most remarkable *Palm* I have seen is a scandent, or climbing one, called "*Malamba*," and with more the aspect of a briar than a palm: I send seeds of it.

After I shall have made a few excursions to the mountains, behind Santa Martha, it is my present design to ascend the Magdalena, to three days journey above Mompax (eleven days' ascent in all). There, at a place called *Taguaje*, from the native name of the *Ivory-Nut Palm* (*Phytelephas*), this tree, the *Tagua*, abounds; and I shall also be in the vicinity of Ocaña, the mountains of which may be worth a visit. But as this plan is formed in the absence of precise instructions from you, it is probable the letters I look for by the next packet may alter my movements.

I have collected many Palm-seeds of different kinds, which should have been sent home with the other things; but I am unable to pack them properly without moss, which is not to be had till I go to Mancha. A plant of the singular *Aristolochia* is thriving beautifully in one of my glass cases.

My dried specimens are also waiting till the next packet. I have been too ill to arrange and despatch them yet.

Several gentlemen have given me descriptions of *Phytelephas*, (*Ivory-Nut Palm*) which they all profess to know well; but the details which they communicate vary strangely. One says the tree is dwarfish, not a yard high, and produces its nuts at the bottom; while others assure me that it is a lofty Palm, and that the fruits are procured from the summit. Of course, I am the more desirous to see the tree myself. A few days since, thirty tons of the nuts arrived from the Magdalena, commissioned for America and Germany: I applied for and received some, and found, on cutting open two or three, that they were quite fresh, and the germ in a state of perfect vitality. Accordingly I planted some fifty, and I hope they may succeed.

You speak of my collecting sea-weeds, but I have only visited the coast in two places, near Rio de la Hacha, which is low and sandy, and affords none. I hope to be more successful at Santa Martha. It will be necessary for me to return thither, that I may plant the nuts or growing specimens of *Phytelephas*, which I expect to procure up the Magdalena River. In the absence of instructions from you, I shall probably visit Antioquia, said to be famous for its rich mountain vegetation.

Santa Martha, March 23rd, 1845.

At the time when I wrote last, rather more than a month ago, I was very weak, from an attack of fever and ague. During my tardy recovery, I have been engaged in packing my dried specimens, which I forward in two boxes, by the same packet as carries this letter. Owing to the carelessness of the persons who brought my luggage from Rio de la Hacha, some of the bundles were immersed in salt water, to the injury of the specimens and destruction of the seeds.

To-morrow I start for Mancha and other places in the vicinity, where I hope to procure plants to fill one glass case, reserving the other for the *Ivory-Nut Palms.* My present intended route is by way of Ocaña, and thence to cross the mountains to Bogotà, a beautiful and fertile district, according to the reports I hear, and which has never been hitherto travelled by any botanist. I have no doubt that I shall find many interesting plants at Bogotà: have the kindness to address me, care of the British Minister.

There are some good Ferns among the plants now sent, but this tribe is less numerous here than in the West India Islands. Among the dried specimens I have lost, were fine ones of *Lafoensia punicifolia*: two or three still remain, and some good *Orchideæ.* I sent growing plants of a very fine *Stanhopea,* from the Sierra de Maracaybo, which is part of the same chain of the Andes which I shall meet with again at Ocaña. The vegetation is said to be far richer around Bogotà than at Santa

Martha, and there are snowy mountains between Ocaña and Bogotà.

I am glad to hear that the *Lace Barks* thrive so well. I shall do my best to keep a journal of my travels, and to make notes of everything worthy of observation; but this is no easy task, where all the arrangements devolve upon one individual: my eye has to be upon all minutiæ, and often at night I am too weary to sit down to write.

I am not yet quite decided whether to proceed to Bogotà, by the Valle Dupar, or by the river Magdalena, ascending it to Ocaña. The latter is the most direct course, but I shall of course get no plants that way.

Tidings have just arrived from Bogotà of a dreadful visitation that has befallen the Valle of Ambolema, famous for its tobacco. An avalanche descended from the snowy range of Tolima, and covered four leagues, engulphing a thousand persons, all its population. For many miles down the Magdalena river the effect of this catastrophe was seen, in the destruction of the fish killed by the sudden rush of cold water. Government has estimated the damage at 60,000 dollars worth of tobacco.

Santa Martha, April 20th, 1845.

Since the sailing of the last packet, I have made excursions to all accessible points of the mountain range lying behind this town, and have collected as many *Orchideæ,* some very handsome species, as fill a large box. I have also many seeds: one is a species of *Lisianthus* which I had not before seen, an abundant flowerer though not very conspicuous; the plant grows to about eighteen inches high, and is much branched. There are also fine ripe fruits of the *Granadilla*; and I see in an old work called 'Florestà de Santa Martha,' and written by a Spanish military officer, about a hundred years ago, that the wood of this tree was then exported, being very highly prized for its beauty in ornamental furniture. Now, nothing seems known of the *Granadilla* timber; and, indeed, the taste for any decorative articles in a house is at the lowest ebb. I have not been able to fill the glass case with growing plants, as I hoped, and have therefore put Palm-seeds into the vacant spaces that they may germinate on the passage. I shall leave the case under the charge of Mr. Ferguson, an English merchant, who is also appointed Vice Consul here, during the approaching temporary absence of Mr. Marks, who is about to proceed to Bogotà, by way of the river.

I trust to start myself the day after to-morrow, and mean to diminish the expence of land-carriage by sending before me to the port of Ocaña, all such things as I can dispense with till I arrive there. The mule I mentioned before, is in good condition, and quite fit for the journey.

Enclosed are some flowers of a splendid *Orchidea*: several growing plants of it are forwarded; but I have been unable to dry good specimens.

I shall write from Ocaña, which is probably the first good botanizing ground I shall reach, six hundred miles distant, the country between is said to be all savanna. The weather continues very warm, 90° in the shade, and 87° during night: happily there is no rain, which is a most favourable circumstance for my journey; several rivers, difficult to be forded, occurring within a few days' travelling from hence. My health continues good.

Ocana, July 20th, 1845.

Since writing from Santa Martha, I have reached this place, traversing a burning plain from five to six hundred miles wide, and destitute of all vegetable interest, except as regards its numerous Palms. So very trying a journey I never made; but my health was good, though I had one or two slight touches of fever. At the village of Semaña, seventeen leagues from hence, and near the great river Magdalena, I entered the mountains by the Paroquia del Carmen, and saw, for the first time, the *Tagua*, or Ivory-Nut Palm (*Phytelephas*). Rising gradually between two ranges of mountains of great elevation, I reached Ocaña, which is situated on an undulated amphitheatre of bare grassy hills, those in the distance only being clad with primitive forest. The elevation of the city is 2500 feet, the surrounding hills about 1500 feet more: there are 6,000 inhabitants. Nothing can be more delicious than the climate, the temperature varying from 65° to 75° Fahr. At Ocaña, for the first time in South America, I have seen little gardens attached to the houses. Apples are grown with some success, and wheat is raised on the hills sufficient for the consumption of the town. I cannot praise the quality of the bread.

Bad weather prevented my doing much for some days after my arrival. I have been obliged to purchase mules for the journey to Bogotà; the hire of each animal to go thither being charged forty-five dollars, while the price to buy them is only five dollars more;—viz., fifty dollars for cargo mules, and from one hundred to one hundred and fifty dollars for those which are used to the saddle. I am fortunately provided with a riding-beast, and have procured four others, at about 200 dollars: but the bargain was attended with much difficulty, for the people here are very hard to deal with.

I spent about a fortnight in the mountains of Ocaña. From the peculiarly marly nature of the soil, a *Befaria* is common, even at this elevation: there are plants of it in the glass-case. Two gigantic forest-trees, species of *Cinchona,* abound in the virgin woods, they are conspicuous and highly fragrant. The most remarkable things I have found are two kinds of *Siphocampylus,* one particularly handsome and rare; I send growing plants of them. Also, some small specimens of a most remarkable *Balanophora,* which I have often seen, five or six inches in diameter. The natives call it 'Cardon de la Cordillera'. Its colour is Indian-red and its rigid bracteas completely enclose the flower when in its most perfect state. Moist places, near the summit of the range, produce it abundantly. Also, another singular plant, allied to *Balanophora,* but quite a distinct genus: I have only three specimens and they are not yet dry. A showy *Salvia,* and a most beautiful *Begonia,** so closely resembling a *Fuchsia,* that I took it for one: in habit, and inflorescence, it rivals our finest cultivated *Fuchsias,* and excels them by being in bloom all the year: I send growing plants and a few seeds of it, and a quantity of roots of two species of *Achimenes,* new to me; one, which I gathered in flower, grows dwarfish, its flowers are showy and white. Of *Orchideæ* I found few: Nos. 1 and 2 are handsome and highly fragrant.

Having received information, that my baggage, which, to save land-carriage, I sent by the river, had arrived at Puerta Macconnal de Ocaña, three days' journey from this place, I proceeded thither. I ascertained that the celebrated *Phytelephas* grew in that direction, and accordingly, one day after leaving Ocaña, and on my way to the Port, I found it at La Laguneta, a small settlement, and being told that I should no where else have such good opportunity of collecting it, I spent some days there.

The *Phytelephas,* or Ivory-nut Palm, is diœcious, very graceful in aspect and producing 15–20 pinnate leaves, which, when full-grown, measure nearly twenty feet in length, and are of a delicate pale green colour. The nature of this Palm is to have little or no stem, its habit is not robust. In old specimens, the mid-rib of the leaves is flattened, but in young and fruit-bearing ones, it is round. The aspect of both sexes is the same. The male plant is distinguished by its spatha: the female plant produces none, or it bursts and disappears at a very early stage of growth. The male flowers and spatha are produced from the axils of the inner leaves and they incline outwards. The singular heads of fertile inflorescence grow round the base of the plant, often six clusters at one time and the heads rest on the ground, or are wedged between the leaves, and borne on a buried footstalk, of which the fibre is exceedingly tough. These clusters are of an imperfectly rounded form, covered with strong protuberances, about an inch and a half long, resembling styles, but which have generally no connexion with the fructification of the seeds. On dissecting one of these compact heads, I found it to consist of many clusters, with three to five, commonly four seeds, compactly knitted together. Hence the name of this Palm," Cabeza del Nigro," by no means an inapt comparison, for the style-like projections resemble a black man's rigid hair. The styles contract to a point, tipped by a stigma, four or five inches long and again divided into as many points as there are seeds or cavities in the clusters. At a very early stage, these hollows are filled with a watery fluid, of a sweetish taste, which lessens in quantity with the advancing state of the fruit. The foliage of this Palm is used for thatching, and the whole of the houses in the Paroquia del Carmea are thus covered, the Ivory-nut Palm abounding in that neighbourhood. The leaves of other Palms are, however, better adapted to the purpose. Enclosing the seeds is a yellow, sweet, oily pulp, which is collected at the present season (October), and sold, under the name of Pepe del Tagua, for one real a pound, at Ocaña. A spoonfull of it, with a little sugar and water, makes the celebrated Chiche de Tagua, said to be the most delicious beverage of this country. It has, however, a slightly drastic property. Although this substance contains much oil, it never becomes rancid by keeping, but at the end of nine months it preserves, in a crude state, all its flavour and quality.

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* *Begonia fuchsioides;* lately published, with a figure, in the pages of our Botanical Magazine

The *Phytelephas* principally inhabits dense shady woods, facing the Magdalena, at an elevation of 1,000 to 3,000 feet on the mountains. I do not believe it is ever seen in the hot plains or level country. At the season when the fruit is ripe, the country is scented with its fragrance and all wild animals, hogs and turkeys, are extremely fond of it.

I shall leave this place in four days, for La Cruz Bucaramanga, proceeding thence to Pamplona, the highest town in New Grenada: snow frequently falls there. I shall return to Bucaramanga, that being the direct road to Bogotà. The whole journey is in Tierra fria and I hope will afford some valuable plants.

I am anxious to know how this consignment of plants &c.

arrives. The glass-case contains growing specimens of *Tagua*; and the soil is full of fresh seeds. I also send a box of the newly gathered nuts, packed in moss. If these should unfortunately suffer by the voyage, I can procure more on my way down the river and am therefore peculiarly desirous to know their fate, without delay.

There are two singular kinds of *Achimenes,* which I hope may reach you alive; if not, they are worth looking for, on my return route.

When I reach Bogotà, if I find no instructions from you as to my further course, I shall endeavour to employ my time to the best advantage; botanizing in different directions, till I do receive orders. I am still of opinion that the Province of Antioquia offers a promising field.

The plants in boxes and the glass-case will be forwarded by the Packet, which conveys this letter. My health is now, happily restored.

Bogota, Nov. 13th, 1845.

I reached this place four days, in good health; but I find no letters, though a Packet has very recently arrived.

The country I have traversed from Ocaña hither is mountainous and beautiful, but unfortunately deficient in virgin forests; owing to the practice which the inhabitants pursue of burning considerable tracts every year, their object being to obtain with little trouble, fresh grass for their cattle. Rich as is the soil, a very small amount of labour bestowed on cultivation would procure all the necessaries of life; but such is the rooted idleness of the people that they prefer depending on their cattle.

I found the cold very severe in the Paramos; not from its absolute intensity, for the thermometer rarely falls below 40°, but because, in these elevated regions, the atmosphere is so rare. Animals and birds perish in great numbers with the cold: I noticed large tracts strewed with their bones. Still these places were highly interesting to me in a botanical point of view, and produced noble *Gentians* and *Syngenesious* plants. I am sending home a fine collection of seeds, chiefly of *Ericeæ, Berberideæ,* a striking *Tovaria* &c.

Four days' journey from Bogotà, I found the most beautiful plant that has yet rewarded my researches, a *Lisianthus,* forming a dense shrub, about three feet high, and covered with lax racemes of scarlet flowers. As the seeds were not ripe, I must go again to collect them; a considerable détour, which it is, however, advisable to make, for the living plants which I took up, will not, I fear bear the journey to Antioquia: the route to reach which is by the Peak of Tolema.

I arrived here with only a real and a half (nine-pence English) in my possession, in debt with my servants and my clothes almost reduced to rags. A few days, however, will enable me to set these little matters to rights.

The situation of Bogotà is delightful, though rather cold, the thermometer varying from 58° to 63°. The city stands at the sloping base of a rock, which rises almost perpendicularly 1500 feet above it. A beautiful plain, several leagues in extent, stretches in front; while westward there is a fine view of the snowy peak of Tolema, which I shall pass on my way to Antioquia.

You will be glad to hear that I detected the famous Cow-Tree of this country (Arbol de Leche); indeed, two kinds of what is so called. I have sent seeds of one sort; the other, of inferior quality and value, was not in fruit, but in flower. Both are of gigantic stature, and it is singular that they are quite distinct, though probably alike belonging to the family of *Sapoteæ*. The most esteemed of these Cow-Trees was laden with its golden fruit, the size of a pigeon's egg, which strewed the ground beneath. Every part of the tree, including the delicious fruit, abounds with milk, which is agreeable, and tastes like sugared cream; having, however, a clammy consistency, which does not please all palates. I found no injurious effects to follow my partaking freely of this vegetable milk.

Bogota, Feb. 11th, 1846.

On my return from a tour, through Muzo and Tunja, I have the pleasure to receive your letter of the 19th, of October.

A few days since I dispatched a box of seeds, two of growing plants, and two of dried specimens. Every precaution has been used in the packing and I think that no injury can occur, except mischief be done in going from the river to Santa Martha. The navigation, though only thirty miles from the mouth of the river to the latter place, is carried on in such wretched, ill-constructed, and worse managed craft, that I am ready to tremble for the fate of my boxes. All was in the best condition when despatched.

Bogota, February 9th, 1846.

The purport of your last letter has somewhat changed my proposed route. I shall still, however, go to Antioquia, and return, either by way of the Rio Conca, or by the Magdalena, to

Santa Martha. The post is expected to arrive on the 11th; and I am occupying the interval in excursions around Bogotà.

I return you my grateful thanks for recommending me to the office of Curator of the Botanic Gardens at Trinidad. If I obtain the appointment, I trust to do good service to Botany.

I have just despatched a box of seeds, two of dried specimens, and one of living plants. They are all carefully packed; and if they sustain no injury between this place and Santa Martha, where the navigation as before stated is very ill conducted, there is little fear of damage on the longer voyage to Europe. Among the dried plants, you will find two specimens of a *Balanophorous* species. It is small and rare: the form is globular and it inhabits moist temperate woods, growing parasitically on decayed vegetable substance. There are also duplicates of one which I had sent previously and of which I hope soon to transmit an interesting detailed account: the genus is certainly distinct from *Balanophora*. The plant is edible and has curious yellowish rigid calyces, which might almost be considered bracteas.

You will be pleased, I think, with the various species of *Gesneriaceæ*: there are seeds of them all. One, which is equally rare and handsome, has terminal drooping spikes: another, a *Lisianthus*, is fine and scarlet-flowered. I procured the seeds of it, by retracing my steps 100 miles on purpose, but I considered these pains well rewarded, by the beauty and abundance of seeds which I was thus enabled to gather. I have also, at last, succeeded in getting abundance of seeds of a *Mutisia*, a *Drimys* &c.

During an excursion of five days to the East of Bogotà, I gathered an *Achimenes* and a *Lisianthus*; neither of which I had seen before. The latter grows very strong and is peculiar to this district. I was also much struck with the beauty of a *Loasa*, with noble tulip-shaped flowers, and an upright habit. Its stings are very formidable, but, happily, the pain they inflict is of short duration. This remarkable species is singularly local, affecting only one spot, so far as I can ascertain, namely the bottom of a deep ravine, called El Vañon, fifteen miles east of Bogotà, where it grows in immense quantity. Dr. Cespedès informs me that it is undescribed; and he is acquainted with no other habitat for it. The scenery and vegetation of this ravine are most beautiful; its elevation is 2,000 feet above the sea, and as Mr. Marks, who accompanied me, justly observed, you would sooner take it for a flower-garden, than as forming part of a primeval forest. I also send seeds of two species of *Passiflora*, one of which inhabits the mountains to the east of Bogotà, at an altitude of 13,000 feet.

Immediately after the Post comes I shall start for Tolema and Quindiu, returning through Antioquia. I am concerned to tell you that Dr. Cespedès, from whom I have received great kindness, is now suffering from an accident. He was passing on horse-back beneath some trees, when his progress was impeded by a large branch, which struck him so severely as to break several ribs. This has brought his botanical excursion to a close, and threatens to be of dangerous consequence. Dr. Cespedès gave me much valuable information respecting the rare plants of the neighbourhood and their localities. He knows six species of *Theobroma.* On the Plains of San Martin a species grows which is in universal esteem among the inhabitants, who call it "Cacao verde": two kinds are particularly handsome: so I consider one of those forwarded in the last case. Among my specimens are two *Theobromas* distinct from *T. Cacos.* From the same gentleman I hear of a *Phytelephas,* which has a twisted prostrate trunk; it is so rare, that he only met with one instance of it during a year's residence amid a large forest of these trees.

Santa Anna, near Honda, April 18th, 1846.

Since writing from Bogotà, I have visited the Paramo of Ruiz, which forms the northern extremity of the snowy range of Tolema, and is about eighty miles distant. Two reasons led me to choose this route: the vegetation promised to be like that of the Paramo of Quindiu; and Mr. Linden had already visited the Peak of Tolema. The journey has not proved quite so productive as I hoped; though I have gathered some few very good plants. It was necessary to return here in order to ship my collections and, besides ensuring a quicker despatch, thus to save the expense and trouble of carrying them over Quindiu. The rainy season has just begun, to the great joy of every one but myself. The protracted drought had been the cause of pressing scarcity, especially at Bogotà.

On my way to the Paramo of Ruiz, I was enchanted with the rich luxuriance of the lower mountains: no where have I seen more beautiful vegetation. Several kinds of Palm are conspicuous: I forward seeds of two species, along with the *Phytelephas,* which also grows there in great abundance. I am happy to inform you that I have had, at last, the good fortune to detect the male flowers of the Ivory-Nut Palm, for which I long sought in vain. The singularity of this inflorescence is only equalled by its beauty. It differs from most other Palms by having a double spatha;

the central column is thickly set with clusters of male blossoms, and forms, when taken all together, a mass three feet long, and four inches thick. Half is concealed within the spatha, from which the other portion projects in a gracefully recurved form. The fragrance is most powerful and delicious, beyond that of any other plant, and so diffusive, that the air, for many yards around, was alive with myriads of annoying insects, which first attracted my notice: the closeness of the forest not permitting me to discern the blossoms at any distance. I had, afterwards, to carry it in my hands for twelve miles, and though I killed a number of insects that followed me, the next day, a great many still hovered about it, which had come from the wood where it grew.

Some of the Mosses of the Paramo, now sent, are peculiarly interesting: also a box of the *Orchideæ,* which I gathered at a height of 10,000 feet, containing many new and beautiful species. The cold, at that height is intense, particularly in the morning and evening; the absolute degree of cold is not great, but it is extremely penetrating, and sets the teeth chattering violently. However reluctant to give way, I found myself constrained to own its trying effects.

You will be gratified, I think, with some bottles of Balanophorous plants: the spirits sold here are so weak and inferior, that it will perhaps be well to fill them again in England. The tall slender specimen is what Dr. Mutis proposed calling *Helosis aquatica.* Dr. Cespedes showed me a very bad figure of it, as described by Mutis, before I saw the growing plant. It is so abundant in some spots, that I could have loaded a waggon with it; none of its allies are found in nearly equal profusion. One of the species resembles what I gathered in Ocaña, but is very distinct, having a separate envelope which, in an early stage, covers the expanding flower stem.

I had hoped to give, in this letter, an account of the fearful avalanche, which caused such loss of life and property last year, but my time and paper forbid any details. I passed over the place, on my way to the Paramo: it stretches twelve miles, and from being a rich fertile district, is now reduced to desolate waste, where not a particle of vegetation remains. The fall of the then freezing mass overthrew whole forests, and buried the houses, strewing the country with stones and fragments of uprooted trees, and engulphing, it is said, upwards of six hundred human beings.

(*To be continued*)

BAMBOO CANE.

The *Bamboo,* is one of those surprising Tropical Grasses, of which we have no parallel in Temperate Climes. An idea of the grandeur and beauty which these magnificent arborescent Grasses impose upon the face of their native country, may, perhaps, be best collected from the account of Capt. Basil Hall, who, after travelling during the night in a palanquin, from the bare Table land of Mysore, towards the hilly and thickly-wooded regions overhanging the Malabar country, awoke in the morning, when, says he, "I found myself in the midst of one of the most curious and magnificent scenes which my eyes had ever beheld. It appeared as if I were travelling among the clustered columns of some enormous and enchanted Gothic Cathedral, compared to which the Minster of York, or the Cathedral at Winchester, would have seemed mere baby houses: the ground extended on all sides as smooth, and flat, and clear of underwood, as if the whole had been paved with grave stones. From this level surface rose on every hand, and as far as the eye could penetrate into the forest, immense symmetrical *clusters* of Bamboo, varying in diameter at their base, from six feet, to twenty or thirty, and even to twice that width, as I ascertained by actual measurement. For above eight or ten feet from the ground, each individual of these clusters, preserved a form nearly cylindrical, after which, it began gradually to swell outwards, assuming for itself a graceful curve and rising to the height, some of sixty, some of eighty, and some even of one hundred, feet in the air: the extreme end being at lines horizontal, or even drooping gently over, like the tips of the feathers in the Prince of Wales' plume. The gorgeous clusters stood at the distance of from fifteen to twenty yards from one another, and being totally free from the interruption of brushwood, could be distinguished at a great distance, more than a mile, certainly, in every direction, forming, under the influence of an active imagination, naves and transeps, aisles and choirs, such as none but a Gothic architect ever dared to conceive. Overhead, the interlacing curves of the Bamboos constituted as complete a groined roof as that of Winchester or Westminster, on a scale of grandeur far beyond the bold conception even of those wonderful artists, who devised that glorious school of architecture.

"On counting the separate *Bamboos,* in some of the smallest, and also in some of the largest clusters, I found the numbers to vary from twenty or thirty, to upwards of two hundred; and the height, generally, from sixty to one hundred feet from the ground at the point of intersection of the curves overhead. Most of the Bamboos were somewhat thicker than a man's thigh at the ground, where, as I have before said, they are clustered so close as to be almost in contact. They then taper off very gradually to the extreme end, where the point is not thicker than a quill.

"There occurs a joint at about every foot and a half; distinguished not only by a flat ring, or fillet, but by a set of small branches, eight or ten feet long, striking out at right angles to the main Bamboo. These minor shoots are again divided into joints; from which, other series of shoots, still more minute, are thrown out, and so on for many successions, the last always terminating in a sharp-pointed narrow leaf, two or three inches long, and half an inch wide in the middle, not unlike a large Tea leaf, when spread out. As each Bamboo, of the hundred or more forming the cluster, sends out shoots from every joint, and as all the joints of these subordinate plants do the same, a compact mass is formed by these innumerable little branches, which cross one another at every possible angle. If a person were to fill a hat full of pins and needles, and shake them about for some minutes, it might give a notion of the inextricable confusion which is presented to the eye in looking into one of these clustered columns of Bamboos. It is only at the top, where the bend takes place, that the foliage has full room to play, or where the tapering arms of this magnificent plant form, by their meeting and crossing, a complete system of pointed arches.

"What surprised me at first, very much, and greatly puzzled me, too, was to observe that, notwithstanding the multitude of lateral shoots from each of the main Bamboos, and from all the subordinate branches, not a single trace of displacement, or the slightest obstruction to the growth of any branch, could be detected. Every person must have heard of the astonishing rapidity of growth in the Bamboo: it is said, indeed, that in one season it starts up to its whole length, I do not know if this be true, but am quite certain that if one of the main Bamboos were to spring from the ground in the centre, or even near the sides of the cluster, and that from its points there were, at the same time, to sprout the lateral branches I have described, it would be impossible for the main stem to force its way through the obstructions presented by the network, formed by the little branches growing from the joints of the other *Bamboos* in the cluster."

Captain Hall then goes on to state how he thinks we can perceive "the way in which Nature manages this difficult affair. When the Bamboo first springs out of the ground, it is about as thick as a man's wrist, always highly polished, with an extremely hard point; and, as no lateral shoots are put out until it has attained its full height, it readily makes its way through the thickest ramified masses, while the subordinate branches, growing in the same manner, find no difficulty in piercing this complicated mass of vegetable life.

"I saw", continues this Author; "Bamboos in every different stage of this process, and particularly I noticed several of the main stems rising to the height of seventy feet and upwards, of a clear yellow colour, and evidently of recent growth, but without a single lateral branch growing from their joints, from top to bottom; and this led me to infer that their extreme height had not been reached, or was but just attained."

Bamboos are applied to many useful purposes, both in India, China, and Japan. The tender tops are used to form a pickle; an excellent paper is manufactured from the tissue of the stem, and the stems themselves are employed in a great variety of ways, such as the making of furniture for their houses, cups, tubs, and boxes: also, in the construction of dwellings, which are sometimes covered with the gigantic leaves of the Banana: in making water-pipes, and in the construction of fences. The substance called, in India, Tabashur, is procured from the joints; it was ascertained, by Dr. Turner, to consist of silica, with a minute proportion of lime and vegetable matter.

EXTREMES OF TEMPERATURES AT VARIOUS TIMES AND PLACES.

(I am indebted to the kindness of Captain Sir Everard Home, Bart., R.N., for the following interesting table, made during an extended voyage in H.M.S. 'North-Star', which may be of use to many persons who cultivate plants from any of the regions there mentioned, and for regulating the temperature of houses, &c.—Ed.)

PLACE.	MONTH.	LIMIT.	TEMPERATURE.		
			HEAT	COLD.	
Singapore.	May.	10th to 15th	88°	80°	Malay Peninsula, South extremity.
,,	February.	4 — 12	89	78	
Hong-Kong.	January.	16 — 24	66	53	China.
,,	June.	1 — 5	84	78	
Macao.	January.	24 — 26	68	56	
Chusan.	October.	21 — 31	76	60	
,,	November.	1 — 30	75	46	
,,	December.	1 — 31	76	43	
,,	January.	1 — 9	62	44	

PLACE.	MONTH.	LIMIT.	TEMPERATURE.		
			HEAT.	COLD.	
Woosung.	June.	16th to 30th	83°	72	China.
,,	July.	1 — 31	91	69	
,,	August.	1 — 31	89	75	
,,	September.	1 — 30	88	69	
,,	October.	1 — 19	78	61	
Copang.	April, May.	29 — 2	89	79	Island Timor.
Port Essington.	March.	6 — 31	94	78	New Holland, North Coast.
,,	April.	1 — 23	93	77	
King George's Island	March.	23 — 31	75	59	Do.
,,	May, June.	26 — 2	72	53	South Coast.
Port Phillip.	June, July.	20 — 1	64	49	Do.
Sydney.	February.	10 — 24	92	68	Ditto, East Coast.
,,	March.	12 — 31	79	61	
,,	,,	3 — 11	84	70	
,,	April.	1 — 30	81	57	
,,	May.	1 — 12	73	56	
,,	June.	12 — 30	70	54	
,,	June, July.	19 — 6	67	53	
,,	July.	1 — 16	70	54	
,,	July, Aug.	16 — 1	68	51	
,,	Nov. Dec.	27 — 9	80	63	
Hobart-Town.	May, June.	27 — 8	61	47	Van Diemen's Land.
Port Arthur.	June.	9 — 13	60	50	South Extremity.
,,	November.	23 — 30	70	52	Do.
,,	December.	1 — 31	73	48	
,,	January.	1 — 31	83	47	
,,	February.	1 — 23	78	48	
Bay of Islands.	January.	1 — 18	76	60	New Zealand. North End of
,,	March, April.	30 — 5	75	66	
,,	April, May.	26 — 12	71	60	
,,	May.	20 — 25	70	60	
,,	August.	1 — 31	68	50	
,,	September.	1 — 30	68	49	
,,	October.	1 — 31	69	58	
,,	November.	1 — 30	73	59	
,,	December.	1 — 31	73	61	
Auckland.	January.	20 — 26	73	64	100 miles South of Bay of Islands.
,,	March.	23 — 29	73	67	
,,	April.	7 — 23	74	60	
,,	May.	14 — 18	66	60	
,,	August.	10 — 14	66	54	
,,	October.	13 — 24	68	54	
,,	November.	10 — 16	66	56	
,,	Dec. Jan.	23 — 18	76	60	
Port Nicholson.	Jan. Feb.	26 — 3	74	60	Cook's Strait.
,,	February.	16 — 24	71	58	
,,	Aug. Sept. Oct.	31.1 to 31 and 1 to 5	65	48	

PLACE.	MONTH.	LIMIT.	TEMPERATURE.		
			HEAT.	COLD.	
Nelson.	February.	3rd to 10th	72°	60°	In Blind Bay.
,,	October.	10 — 14	65	55	
A-Karoa.	November.	1 — 10	68	53	Banks's Peninsula, New Zealand, Middle.
Norfolk Island.	July.	16 — 19	71	60	
Tonga-taboo Island.	July, August.	29 — 6	83	68	Friendly Islands.
Vavan Island.	August.	14 — 20	84	72	Do.
Upolu Navigator's I.	Aug. and Sept.	24 — 1	88	80	Navigator's Group.
Wallis's Island.	September.	5 — 14	87	80	Latitude 13° 20′ S., Long. 176° 20′ W.
Cape of Good Hope.	February.	24 — 27	76	64	
,,	May.	25 — 31	65	57	
St. Helena.	June.	22 — 28	77	70	
Ascension.	July.	3 — 5	80	76	
Fayal, Azores.	August.	8 — 11	81	74	
Halifax, Nova Scotia.	May.	25 — 28	52	45	
,,	June.	3 — 10	63	50	
Bermuda.	Jan. Feb.	22 — 10	72	56	
,,	March, April.	14 — 4	73	59	
,,	June.	10 — 27	83	75	
Port Royal, Jamaica.	January.	3 — 11	83	75	
,,	February.	13 — 15	82	76	
,,	Feb. March.	27 — 1	80	76	
,,	July.	11 — 31	86	78	
,,	August.	1 — 28	85	78	
,,	Sept. Oct.	28 — 10	84	79	
,,	Oct. Nov.	26 — 6	84	76	
,,	Nov. Dec.	17 — 4	82	75	
,,	December.	8 — 17	83	75	
Port Antonio.	Dec. Jan.	24 — 2	80	67	North side of
Barbadoes.	Dec. Jan.	20 — 5	81	70	Carlisle Bay.
,,	January.	9 — 16	84	74	
,,	February.	21 — 26	84	74	
,,	March, April.	8 — 8	82	74	
,,	April.	13 — 17	84	77	
,,	May.	1 — 14	82	77	
,,	June.	4 — 15	84	78	
Antigua.	April.	1 — 30	81	76	Carib. Islands
St. Thomas's.	May.	16 — 19	83	79	
St. Vincent's.	April, May.	22 — 11	84	76	Carib. Sea.
Trinidad.	January.	7 — 12	82	76	
St. Juan's, Nicaragua	January.	18 — 24	83	76	Musquito Coast.
,,	September.	10 — 12	83	79	
Chagres.	Jan. Feb.	30 — 1	82	79	Isth. Panama.
,,	September.	17 — 20	84	78	
Carthagena.	Jan. Feb.	28 — 9	83	74	
,,	November.	9 — 13	86	81	
La Guayra.	April.	11 — 14	81	75	
Demerara.	May, June.	29 — 1	82	78	
Parà	June.	1 — 30	84	76	Brazil.
,,	July.	1 — 31	84	77	

PLACE.	MONTH.	LIMIT.	TEMPERATURE.		
			HEAT.	COLD	
Parà.	August.	1st to 31st	86°	77°	Brazil.
,,	,,	1 — 13	84	76	
,,	September.	1 — 30	84	77	
,,	October.	1 — 31	85	76	
,,	Nov. and Dec.	24 — 11	84	77	
,,	December.	1 — 31	84	77	
Maranham.	September.	23 — 30	84	78	
,,	October.	1 — 31	83	76	
,,	November.	1 — 21	82	78	
,,	,,	8 — 25	83	78	

The same intelligent friend (Capt. Sir Everard Home, Bart.,) in reply to some queries put to him, has given the following interesting notices:—

"There is no fear of the Pines (*Araucaria excelsa*) being exhausted upon Norfolk Island. The island is very nearly covered with them; their outline having, at a distance, the appearance of Cathedral ruins, &c., as the light or shade may be; and the convicts do no more work than they are obliged.

"I forget whether I mentioned to you that the island was formerly covered with orange-trees. The Commandant, in 1827, Colonel Morrison, believing that the fruit furnished means of sustenance to the runaway convicts, caused them to be destroyed, with a very few exceptions, which trees have since gone off; and although every means have been taken to re-establish them, they will not succeed. In 1844 there was but one tree upon the island, and that was in an unhealthy state.

"In the Island of Ascension, the vegetables cultivated in the garden will not re-produce their seed: the seed being supplied by contract, it is often old and bad. When I was there, this time last year, they had not vegetables to give the sick in the hospital, the consequence of which was that the men did not recover; and those sent to the island from the Coast of Africa, instead of returning thence to their duty, were invalided, and sent to England. I think the gardens of those islands might be supplied regularly with good seed, from some Government establishment in England that could be depended upon. In New Zealand, beans, peas, &c., do not bear a crop until the second year.

"In Van Diemen's Land it is believed that neither fruit nor flowers have the same flavour or perfume as here, although they are very fine. Nor have bees the same degree of venom in their stings.

"The largest known tree there is twenty-four and a half feet in diameter, the tallest is 180 feet: they are White Gum trees. Hops, &c., in the Southern Hemisphere turn in the same direction as they do in Europe."

"At Port Nicholson (Cook's Strait), French Beans and Scarlet Runners are not good until the second year. Broad, or Windsor, Beans produce the best crop in the second year. Scarlet Kale is never good, for want of frost to sweeten it: it is bitter."

An excellent correspondent, Assistant-Surgeon J. E. Stocks, Esq., of Scinde, writes as follows, from that country, so little known in a botanical point of view.—

"Perhaps a brief statement of what I have seen of the Scinde vegetation may be acceptable, though almost valueless from its incompleteness. However, I trust one day to do better, and *this* may illustrate the few plants I have now sent.

"The Beloochistan Hills (Brahooie range), which form the W. boundary of Scinde and run parallel with the river, sending spurs towards it, are confined to the right bank; except at two places, viz., Sukkur and Hyderabad, where the river passes through a Limestone range, which does not, however, extend far from the river on its left bank. The hills and their spurs vary in their distance from the river, (reaching down to it sometimes, as at Jerruk and Sehwan,) and the tract of land between them and the river is well cultivated, more especially the oval island formed by the divergence and re-entrance of the Arun branch (of which Lake Munchur is a mere expansion). On the left bank, the land is less and less cultivated as you recede from the river, till it shades off into the great desert to the E., and the little desert, to the S.E.

"During the inundation, numerous canals carry fertility over a large extent of country; and under the admirable management of Major Scott, will, in a few years, make the revenue swell out wonderfully. But it requires two years yet, at an expense of 20,000*l.* a year, to bring the canals back to the state in which they were when we conquered the country. For the Scindians neglected tillage, and allowed the canals to choke up, for two successive years, not knowing what would happen, whether the Ameers would be restored, or whether we should hold the country; and the *staple commodity* of Scinde, viz., sand, being a bad material for canal-works, they get blocked up if neglected a single year. The Marrum grasses would be of great use in

Scinde, or the *Spinifex squarrosus*, of the Concan, which binds the 'ribbed sea-sand.' To return to Scinde: there is the Delta also, ending in the line of Sea-coast, forming the S.W. boundary. The Delta I do not know, except that it produces gigantic grasses and sedges in abundance; and I have only seen the coast at the extreme west angle, where, at Kurrachee, the Beloochistan hills come down to the sea.

"There grow the *Convolvulus Pes-Capræ, Salsolas, Salicornias, Ægiceras majus* (mentioned by Arrian as having sweet flowers like a violet, laurel leaves, and growing below high-water mark, which can apply to nothing so well as to this), a *Scævola*, and, no doubt, *Avicennia* and *Rhizophoras*, though I have not seen these last.

"A *Statice* and a *Lycium* seem also to confine themselves (as much as they can) to the neighbourhood of the sea; and many plants, when growing within reach of the salt breezes, get fat and hypertrophied, with thickened leaves. What is it that causes the change above referred to?

"In the sandy deserts of Scinde grow *Calotropis Hamiltonii*, and its parasite *Phelipæa Calotropidis, Capparis aphylla, Zizyphi, Acacias, Mimosas, Cassias, Indigoferas, Neurada, Cucumis amarus, Colocynthis vulgaris, Fagonia Mysorensis, Equisetum debile, Tribulus lanuginosus, Alhagi Maurorum, Prosopis spinigera, Vachellia Farnesiana, Corchorus humilis* (Munro,—Wight's 'Icones.' 1073, *Corchorus humifusus*, Law in 'Bombay Catalogue,' p. 254.) which regularly opens its flowers at 3, P.M..

"Round villages, or where the soil is better, or has been cultivated, grow also *Sidas* (*humilis, alba*, &c.), *Lebretonia, Pavonia, Abelmoschi, Abutilons, Cardiospermum Halicacubum, Aristolochia bracteata, Phyllanthus Niruri, Polygalas (Rothiana, rosmarinifolia*, &c.), *Gynandropsis pentaphylla, Cadaba Indica, Commelinas, Lactuca sarmentosa, Sonchi, Zapania nodiflora, Gisekia molluginoides, Aerva lanata, Celosia argentea, Achyranthes lappacea* and *alterniflora, Gnaphaliums, Solanums, Argemone Mexicana*; several *Corchori, Trianthemas, Portulaceas, Polycarpæa spadicea, Glinus dictamnoides, Boerhaavia procumbens*, and one, if not two, shrubby species. *Justicia bicaliculata, paniculata, echioides, repens*, and other *Acanthaceæ. Xanthium Indicum, Ipomæa Pes-Tigridis, pilosa*, and *dasysperma, Pharbitis Nil, Batatas pentaphylla, Calonyction muricatum, Convolvulus microphyllus*, and two *Jacquemontias*.

"On the spurs of the Beloochistan hills (limestone formation) grow *Euphorbia antiquorum*, two *Barlerias* (both, I think, new), *Monsonia Lawiana, Melhania abutiloides, Linaria ramosissima*, two *Cleomes, Seddera, Balsamodendron Roxburghii* and *pubescens, Cometes Suratensis, Serræa purpurea, Heliotropes, Arnebia, Xygophyllum simplex* and another species, *Didesmus, Taverniera, Campylanthus salsoloides,* a shrubby *Convolvulus, Gossypium obtusifolium, Antirrhinum buxifolium* (*mihi*), &c. Again, *Salvadora Persica, Ochradenus dioicus, Leptadenia Jacquemontiana,* with *Bryonia epigæa, Rhynchosia nuda, Coccinia Indica, Luffas, Momordica Balsamina* and *Pilogyne cerasiformis* (*mihi*), these, though not rock-plants, yet will grow where in the crevices there is any earth, or round the stems of the *Euphorbia.* On the river bank grow *Zapania nodiflora, Ranunculus Indicus,* a *Potentilla, Grangea Ægyptiaca,* a *Rumex,* and young germinating plants of *Tamarix* and a *Populus*[*] (the *Ban* tree of Scinde), cover the mud banks for miles. The *Tamarisk* is a great feature in Scinde, on the river banks, and in choked up canals and ravines. There are two species, one a large tree, whose flowers I have not as yet seen: its timber is useful; as are the woods of *Dalbergia Sissoo* (the *Talee*), *Capparis aphylla* (the *Kureel*), *Acacia vera* (the *Babool* or *Keekur*). The *Shikargues* of the Ameers were formed almost exclusively of the Babool, which attains an enormous size, and is a most magnificent tree. These forests are quite a feature in the country about Hyderabad; as are the palm-groves (*Phœnix*) about Sukkur.

"I forward you a few plants gathered round Kurrachee, from which, collected at intervals, and under disadvantages, the foreshadowings of the Scinde vegetation may be traced. Among the interesting genera are *Neurada, Cometes, Serræa* (*Senra,* DC.), *Ochradenus, Didesmus, Seddera,* all Egyptain and Arabian genera. Besides which, two *Balsamodendrons* (one new),—two (new?) *Cleomes,* two *Jacquemontias,* a shrubby *Convolvulus,* two *Zygophylla* (one new), a *Statice,* a *Chascanum,* a *Lycium,* abundance of *Borragineæ* (*Arnebia, Heliotropes, Heliophytum,* &c.), show a vegetation much akin to South Persia, Arabia and Egypt; in short, the *nearest* approach in India (geographically and botanically) to the "Syrian" vegetation,—Schouw's "Acacia and Mimosa region"—which extends to the Punjaub, and even to Agra and Delhi, as Royle long ago observed."

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[*] A very remarkable species of Poplar, very nearly allied to, if not identical with, *Populus Euphratica,* Dne.—Ed.

ADDITIONS TO THE "HORTUS KEWENSIS."

1. CEROPEGIA CUMINGIANA.

Volubilis glabra, foliis ovatis basi cordatis apice longe attenuatis acutis tenuibus, pedunculis folium medium æquantibus plurifloris, sepalis acutis, corollæ tubo clavato, limbi laciniis oblongis glabris apice cohærentibus, corona stam. ampla, fol. externe acuminatis approximatis glabris, interior. subulatis exterior. vix duplo superantibus.—*Decaisne in De Cand. Prodr.* vol. viii. p. 643.

HAB. Philippine Islands, *Cuming*, n. 447. Island of Balla, in the Java Sound, *Thos. Lobb. Cult. in Hort. Veitch*, 1847.

A very pretty climber and free flowerer, from the collection of Messrs. Veitch and Sons, in whose stove, at Exeter, it bloomed in August, 1847. The flowers are among the largest of the genus, and variegated with dull green and reddish brown.

2. CALCEOLARIA (APOSECOS) CHELIDONIOIDES.

Var.? SUBINTEGRIFOLIA.

Annua (?) ramosa, pilis sparsis hispidula, foliis pinnatisectis, segmentis paucis, terminali maximo ovato lateralibus oblongis, lanceolatisve dentatis subincisisve, petiolis vix connatis, laciniis calycinis ovatis acutis, corollæ labio superiore calyce dimidio breviore, inferiore maximo porrecto obovato orbiculato basi abrupte et longiuscule contracto breviter aperto, antherarum connectivo postice incrassato loculo adnato sub-sessili pollinifero, antice elongato clavato sterili.—*Benth.*

Calceolaria chelidonioides, *H. B. K., Nov. Gen. et sp. Am.* vol. ii. p. 378. C. pinnata, *Ruiz, et Pav. Fl. Per. et Chil.* vol. i. p. 14. t. 19. f. *a.* (non *Linn.*) *Benth. in De Cand. Prodr.* vol. x. p. 204.

Var. *Leedsii*; foliis fere omnibus integris.

HAB. Peru, Columbia, Mexico. Var. *Leedsii*, Bolivia, *Bridges. Cult. in Hort. D. Leeds*, 1847.

A hardy, creeping, herbaceous, but apparently perennial species, raised by Mr. Leeds, of Manchester, from seeds collected in Bolivia by Bridges. It may, perhaps, prove a distinct species, for the leaves can be scarcely said to be pinnatifid in every part of the plant, but resemble those of the upper portion of most of my native specimens of the true *C. chelidonioides*. It clearly belongs to Mr. Bentham's *Aposecos* section; of which *C. pinnata* is the type. If it proves new, as is more than probable, I should wish it to be called *C. Leedsii*, in compliment to a gentleman of Manchester, E. Leeds, Esq., who reared it from seed, and who is indefatigable in introducing new plants into our gardens.

3. ASTER CAUBULICUS.

Herbaceus erectus ramosus, ramis obtuse angulatis fusco-pubescentibus foliis subsessilibus lanceolatis (supremis sublinearibus) acuminatis basi subattenuatis subundulatis inferioribus obscure dentatis supra impresso-reticulatim venosis glabris subtus pallidis nervis prominentibus subpubescentibus, corymbis multifloris, pedicellis sparse foliosis pubescenti-subviscosis, involucri ovati squamis imbricatis 3–4-serialibus lineari-subulatis viridibus pubescentibus apice sphacelatis inferioribus 1–2 remotis bracteiformibus, acheniis compressis pilosis radii sterilibus.

HAB. Caubul. Cult. in Hort. Kew, 1846. Received from *Mr. Cameron* of the Birmingham Garden.

A pretty shrubby *Aster*, flowering in the Autumn in the open border, for it seems quite hardy, as late as October and probably till the frosts cut it off. Two to three feet high, erect, branched, copiously leafy; leaves, with axillary shoots, four inches long in the lower parts of the plant, two and three in the upper, where they become narrower and almost linear. Corymbs ample, many-flowered; the flowers small but closely placed, ray pale and bright purple, disc deep yellow; pappus in a single series almost white; setæ scabrous.

Notice of the PINES *introduced of late years into England, and especially of the* PINUS AUSTRIACA; *by the* REV. J. ROGERS.

The *Pinus Austriaca* appears to have been introduced into England in the year 1835: the English name is the *Austrian* or *Black Pine*, and it is also called the *nigricans* or *nigrescens*. Having been recommended to me as a *hardy* Pine, likely to do well in Cornwall, I began to plant it there in 1839, and reared 489 trees that year, and was encouraged, by the satisfactory appearance of this Pine, to plant double the number in the following year: so that by the end of 1846 I had planted 28,739. It seems peculiarly adapted to bear the violent and blighting winds to which Cornwall is subject, and which render care and skill on the part of the cultivator, both in the selection of the trees best adapted to the climate, and in choosing the proper time and mode of planting, essentially necessary. Neither the *Larch*, the *Scotch Fir*, nor the *Spruce*, will stand the south-west and north-west winds; the *Pinaster* has been hitherto considered the only Pine which endures our blighting winds without injury, and I believe that a larger proportion of this is planted in Cornwall than in any other county. But the *Pinus Austriaca* is in many respects superior. The *Pinaster*, indeed, grows more rapidly, presents a fuller mass of foliage to our prevailing winds, and consequently is an excellent nurse in an exposed situation; but it is more difficult to rear than the *Pinus Austriaca,* and suffers much in the nursery in a very dry, or very wet season. An unfavourable season has sometimes killed from one third to half of my young *Pinasters*; whilst at the same time, and in the same nursery, I have not lost more than five per cent. of my *Austriacas*. The *Pinaster* is also less firmly rooted, and generally requires to be banked up after a storm for the first three years. The wood of the *Pinaster* is brittle, and subject to the worm: the *Austriaca,* as far as I can judge from cutting down small trees, appears tough, and is said to be durable, and, from the comparative straightness of its stem, is much better calculated for planking. It does not thrive like the *Pinaster* in a dry stony soil, but it promises to bear exposure to the sea air equally well. The largest of my *Austriacas,* planted probably in 1839, is eleven feet high and two inches and an eighth in diameter, three feet above the ground. A few are beginning to produce cones which are about the size of those of the Scotch Fir; still this Pine does not bear cones either so early or so freely as the *Pinaster.* A shelter having been formed by the *Pinaster* and the *Austriaca,* other and less hardy pines may be planted, even in exposed situations; the *Scotch Fir*, the *Larch,* the *Spruce,* and the *Silver*; though the latter endures exposure better than the other Pines. I have mentioned that the Pines of India succeed in Cornwall: of these the *Cedrus Deodara* is the most graceful and vigorous: the *Abies Morinda* promises well, and will grow in moderately exposed situations: the *Pinus excelsa* likes shelter, yet grows feebly without it, the wood is soft, like the kindred Pine, the *Weymouth.* The *Picea Webbiana* is a very slowly growing Pine, though highly ornamental, where, as at Dropmore, it exhibits its purple cones. I have not yet succeeded in raising the *Pinus longifolia,* and my plants of the *Pinus Gerardiana* are hardly sufficiently advanced to exhibit their character. There is one Pine, the produce of California, which stands our climate, and promises to be a great ornament to our plantations,—the *Pinus insignis*: it has a rich full foliage of various shades of green, grows as freely as the *Pinaster,* and, like that Pine, requires to be occasionally banked up if planted in an exposed situation. I have not yet tried it in situations fully exposed to the winds; but it has all the appearance of being very hardy, and bids fair to endure the blighting winds of Cornwall. My two largest Pines of this species measure, respectively, ten feet eight and thirteen feet five in height, and were planted about the year 1841. I conclude with one remark on the management of Fir plantations, the result of some years' experience. Thinning ought to be commenced at a very early period, before the thinnings are of any value. It tends greatly to the thriving of the trees to admit the sun and air freely, as soon as a shelter has been formed against the prevailing winds. Weeds and underwood should be cut and laid round the trees, which will keep the trees from the too powerful effect of the sun, and will also check the growth of the weeds. One thinning prepares the way for an early repetition, and as soon as the branches meet, the intermediate trees should be cut down. I never cut the side limbs of a Fir, except preparatory to felling it the succeeding winter; and the flourishing state of my plantations fully confirms the propriety of this mode of treatment. Planters generally begin to thin their plantations when injury has been already sustained by the trees growing too near, and by the want of the free access of the air and the sun.

Penrose.
August 25th, 1847.

The Ceylon Botanic Garden.

(Extract of a despatch to the Colonial Secretary from SIR J. EMERSON TENNENT, on the condition of the Ceylon Botanic Garden.)

In connexion with the agriculture of the island, I feel it my duty to call your Lordship's attention to the very satisfactory progress of this institution, and the services which it is rendering to the development of the natural resources of the island.

The attention of its superintendent, Dr. Gardner, has been directed not merely to scientific investigation, but to the introduction from other countries and the acclimatized cultivation of such exotic plants as are likely to add to the agricultural wealth of the island.

Previously to the arrival of the present superintendent, who was selected by Sir W. J. Hooker, the garden had been so neglected as to be almost valueless to the colony. By Dr. Gardner's attention and exertions, it is now one of the most flourishing and useful institutions in India: large nurseries have been established for the propagation and distribution of useful plants, which are sold at a trifling price to the public, and numbers of foreign trees and vegetables have been successfully introduced. The result is that hundreds of thousands of trees and plants of all descriptions have been dispersed throughout the island, at a very moderate cost to the Government. Dr. Gardner is likewise engaged in the preparation of a *Flora Ceylanica,* a work which will contain descriptions of all the plants indigenous to the island, so far as he can obtain them, and thus make known to the scientific world, the history and uses of the vegetable productions of a region, with which the botanists of Europe are less acquainted than any other portion of India of equal extent.

On the NATIVE CLOTH *and on the* KAVA *of the South Sea Islanders.*

(In a letter from CAPT. SIR EVERARD HOME, Bart., R.N.)

The Plantations in the Island of Tongataboo, the largest of the Friendly group, consist principally of Yams, Taro, and the Paper Mulberry. From the bark of the latter, taken when the stem is about two inches in diameter, the cloth is prepared with which both sexes of the inhabitants are clothed; and it is thus made. After being soaked in water it is laid upon a log of wood, which is about as large as the axle-tree of a large cart, small at each end, both extremities supported on the ground by three small pieces of wood, two being laid parallel to each other and to the main log, the third is laid across; the ends of the log thus rest upon the cross pieces, which raise it three or four inches from the ground, according to the thickness of the pieces of wood which support it. The bark, when placed upon the log, is beaten out by the women with an instrument made of heavy wood, something like a rolling-pin, except that it is square from the handle, which is round. The beating commences at daylight in the morning and continues, without ceasing, until three in the afternoon, unless the women are working against time, some great event, such as a marriage, causing increased exertion, when they go on until dark. The noise caused by the beaters is loud and musical; they keep time in the operation; two or four beaters are usually at work in every house, or under a shed formed for the purpose in the enclosed court-yard which surrounds each dwelling, so that the women of Tonga make more noise than those of any place I ever visited.

When the bark is beaten out it is called "*Tapa*", and the breadths are pasted together with paste made of the flour of Arrow-root or Taro. When dried, it is printed, after which it is called "Gnato". The pattern is devised by the King's family, the type or pattern is raised upon the leaf of the *Pandanus*, and, contrary to other prints, the side which receives the stamp is the wrong side, the reverse being the right side. King Josiah Tubo, to show what could be produced in this way, had a piece of cloth made, which was, as I am informed, two miles in length and 120 feet wide. When finished, it was necessary to spread it, and the ground had to be cleared to display it upon. When the first piece was cut off there was a great feast of pigs and yams; it was all distributed, and the specimen sent to the Garden is a part of it.* It is worn round the waist in a large fold, covering the body from above the hips to the knees, and is secured round the middle by a girdle of mat or tapa. The only distinction in dress of the King or his sons, consists in the girdle, which is of Tapa, in the raw state, and of a dull white colour. By loosing the girdle the cloth can be drawn over the whole body, and is so worn in rainy weather.

In some islands, as at the Navigators, it is made, not by beating, but by scraping or pressing out with cockle shells upon a flat board, held between the knees; this operation is performed by the water side, and the cloth is kept constantly wet; but it is of inferior quality.

Kava.

When on a visit to the Tue Tonga, at Tonga-ta-boo, this Chief asked me if I would have some Kava, saying he knew we did not drink it, but, if I pleased, he would have some made; which offer I accepted. This great man, whose person is held sacred by the natives, sat upon the mat which covered the floor of the house, his back resting against one of the pillars which support the roof. The centre of the room was a clear space; the opposite side was filled with natives, who sat in silence, forming a semi-circle before him. They sit cross-legged like the Turks. A man being called from amongst them, crouched down in a most humble manner as he received his orders from the Tue Tonga, and having with his right hand touched both his (the Tue Tonga's) feet, which were tucked up under his hams, started on his errand. He shortly returned carrying a large plant of the Kava (a species of Pepper, *Piper methysticum*, L.), under his arm. It appeared just as it had been taken from the ground, the leaves, only, having been removed from the stems, they were about three feet long and ten or twelve in number, an inch in diameter at the base, and tapering toward the end. He brought the plant in a stooping posture, holding it in both his hands, the root towards me, and, having thrown it gently down upon the mat before me, withdrew. After it had lain upon the ground a few seconds, it was removed by the man who brought it, to the opposite end of the hall. A large bowl * of wood, having four short thick legs of the same, was taken down from a pillar of the house, against which it hung, and was placed before a young man, I believe the son of the Tue Tonga, the handsomest and the chief person in the assembly, who sat in the centre of the front row of those who filled the space opposite to us. A long bone (?) which I took to be the tooth of a narwhal, was then brought in, with which the root was broken and divided into separate pieces, the man holding the bone in a vertical position and pounding the root, also held upright, with the broad end of it, which done, the bone was taken out again, and the portions of root and stems, about six inches long, were distributed to the persons who sat on each side of the bowl, who, after scraping off the earth which adhered to the roots, and cleaning it well with the fibres of the cocoa-nut husk, broke off portions with their teeth and commenced chewing it. Whilst this part of the operation was performing, I was engaged in conversation with the Chief, and answering his questions. Presently after two men arrived, bearing upon a pole between them two baskets, one of which contained a baked pig and yams, the other, parcels of a kind of jelly made of arrow-root mixed with the juice of sugar-cane: these parcels were tied up in portions of the leaves of Banana, and were about as large as a good-sized pudding; they were about eight or ten in number. The appearance of the dish was not inviting, but upon experiment, being hungry, it was by no means to be despised. The pig was sent to the boat. There was enough, in all, for at least twenty people.

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* Among many valuable contributions made by Sir Everard Home, to our Botanical Museum at Kew, are specimens of this cloth and the apparatus for preparing it.—Ed.

The Kava root being masticated, the young man who presided over the bowl first threw his mouthfull into it: those who were near enough flung in what they had chewed, and those who sat farther off put their morsels into small dishes made of Banana leaves, which were handed round to receive them, and their contents being all collected in the bowl, water was brought in calabashes, about six in number, containing together about two gallons, or perhaps more. The water being poured into the bowl, the young man with his hands commenced mixing the masticated mash with the water; when this was thoroughly done, he took a large bunch of fibres of the bark of a tree called Fow (a *Hibiscus*?), resembling coarse tow: this he spread with both his hands along the margin of the bowl opposite to him, and drew it through the liquor, which had the effect of straining it, bringing away all broken fibres and pieces of the root, these being retained in the Fow, which was well wrung over the bowl, and the process was repeated until the liquor was free from fragments, which were all retained in the centre of the Fow. All this was done slowly, and with an air of ceremony. Small square cups, which would contain about half a pint or less, made of the leaf of the Banana, were then produced, and the Fow being filled with Kava from the bowl, over which the cup is held, the liquor ran from it into the vessel. The first dish was brought to me. Etiquette, of which I was ignorant, requires that it should be drunk off, and the cup thrown into the centre of the room. I tasted it, and handed the cup to Tue Tonga, who immediately sent it to be filled up, as if that which I had taken had diminished the quantity: he then drank it off, and threw the cup towards the bowl. Others were served, a person calling out to whom it was to be carried; otherwise, the whole was performed in silence. Each, as he drank off his cup, threw it into the middle of the floor, towards the bowl; they were all served sitting. There is, I believe, in all things respecting Kava, as much etiquette as in any ceremonies in the stiffest court in Europe; and we, who do not know and follow them, are by these people considered as deficient in politeness and refinement as they would be at London or Paris in the best societies. This, however, is to be said, that in decency and propriety of manners, if not to say elegance, some of these natives would set an example which might be followed with advantage by many at the above-named places. When the Kava was finished, the bowl was wiped with Fow, which was frequently wrung. With it the young man wiped his hands and arms, and then, having shaken it well, hung it up to dry, and the bowl resumed its station against the pillar of the house.

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* The bowl, and specimens of the Pepper, or Kava plant, are deposited in the Museum of the Royal Gardens.—Ed.

There is a property in this vegetable, which, after frequent use stains the bowl to a colour resembling bronze, so much so that the first I saw I believed to be made of that metal. The taste is pungent and unpleasant, leaving an uncomfortable huskiness in the throat.

The Romish priests who are upon the island, drink Kava with the natives with whom they reside. The Tue Tonga is a pagan; but King Josiah and those who have been converted to Christianity have left it off, at the desire of the Protestant Missionaries. In Wallis's Island the French pilot, who is a respectable person, drinks Kava from choice, which he makes by stamping the root in a mortar. At the Feejee Group it is so scarce, that a man about to sail from Tonga for those islands, provided himself with as much as would fill a moderate-sized cart, which was to answer all purposes of barter, &c. The yams of the Feejees are the best in the South Seas.

At Wallis's Island I met the King, walking from his house in which he had slept to that in which he was to pass the day. A root of Kava, without the stems, was carried slung upon a pole before him: it was broken up and brewed as soon as he arrived, exactly in the same manner as at Tonga, except that those who had to chew the root washed their mouths before commencing their office; there also the principal person present, next to himself, prepared the mixture.

Under the shade of a tree upon the Island of Vavou I saw a Kava party of the poorest sort: it consisted of an old man and five or six others; they had but a very small piece of dry root, yet they used as much solemnity in making the beverage as at the house of the Tue Tonga, so that it was a ridiculous spectacle.